ARM Cortex® -M

32-bit Microcontroller

NuMicro™ Family
NuEdu-UNO for NUC131 Series
User Manual

Engineers version

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www.nuvoton.com

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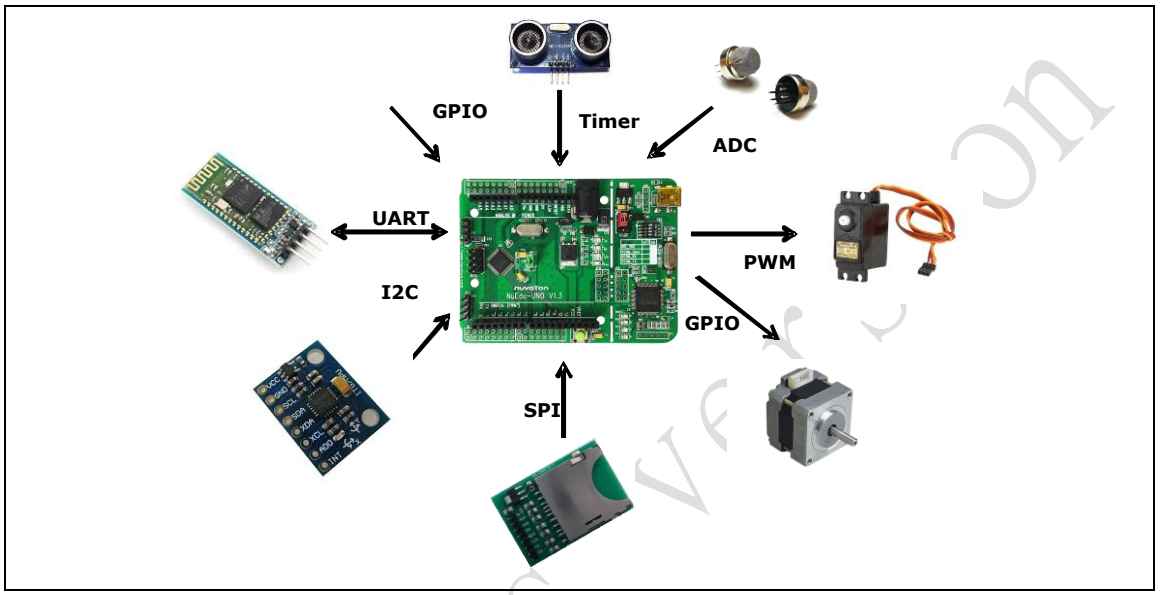
1 Overview

Arduino is an open-source electronics platform based on easy-to-use hardware and software. NuMicro NuEdu Evaluation Board is an Arduino compatible hardware using NuMicro MCU as the micro controller. Its function can be extended with Arduino add-ons. Users can use Arduino IDE to develop their applications and leverage large number of open source samples.



The NuEdu-UNO-NUC131SD2AE is a specific development tool for NuMicro™ NUC131 series by which users can develop and verify the application program easily. The NuEdu-UNO-NUC131SD2AE includes two portions: NuEdu-UNO-NUC131SD2AE (an evaluation board) and Nu-Link-Me (Debug Adaptor). With the NuEdu-UNO-NUC131SC2AE, users do not need additional ICE or debug equipment.

The NuEdu-UNO-NUC131SD2AE design pin compares to Arduino design pin. Due to chip Property function, the NuEdu-UNO-NUC131SD2AE design pin have some different. We provide the Power pin (VCC, 3.3V, 5V), Analog pin (A0 ~ A5), Digital pin (UART0, PWM(2 ~ 11), SPI_SS, INT, I2C0) and Clock Output pin (CLKO).

The NuEdu-UNO-NUC131SD2AE can use UART0 to print the debug massage or open the SW2 to use VCOM from USB interface to print the debug massage.

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2 Features

The NuEdu-UNO for NUC131 board offer the following features:

- Nuvoton microcontroller with LQFP64 package
- Accord Arduino pin design specification.
  - Power, Analog, SPI pin
  - Digital pin have UART, I2C and vref
- NUC131 characteristical
  - Up to 24 channel PWM outputs
  - Up to six UART
- extension resources
  - Novoton Microelectronics Morpho extension pin headers for full access to all NUC131 I/Os
  - On-board Nu-Link debugger/programmer with SWD connector
- Flexible board power supply
  - USB VBUS(can use jump to change 5V or 3.3V)
  - External VIN (7V<VIN<12V) supply voltage from transformer
  - External 2.5 ~ 5.5V supply voltage from other power source input to VDD pin
- LEDs status
  - Power, user, Tx, Rx and ICE status.
- One push buttons: RESET
- Supported by wide choice of Integrated Development Environments (IDEs) including IAR, Keil, GCC-based IDEs

Engineers version

3 Introduction to NuEdu-UNO-NUC131SD2AE

The following figure shows the NuEdu-UNO-NUC131SD2AE for NUC131SD2AE series, in which the left portion is called NuEdu-UNO-NUC131SD2AE and the right portion is Debug Adaptor called Nu-Link-Me.

The NuEdu-UNO-NUC131SD2AE is similar to other development board. Users can use it to develop and verify applications to emulate the real behavior. In fact, the real chip NUC131SD2AE is mounted on the board. The NuEdu-UNO-NUC131SD2AE can be a real system controller to design user target system.

The Nu-Link-Me is a Debug Adaptor which connects the USB port of your PC to your target system (via Serial Wired Debug Port) and allows you to program and debug embedded programs on the target hardware. To use the Nu-Link-Me Debug adaptor with Keil, IAR or Arduino, please refer to “Nuvoton NuMicro™ IAR ICE Driver User Manual” or “Nuvoton NuMicro™ Keil ICE Driver User Manual” for details .

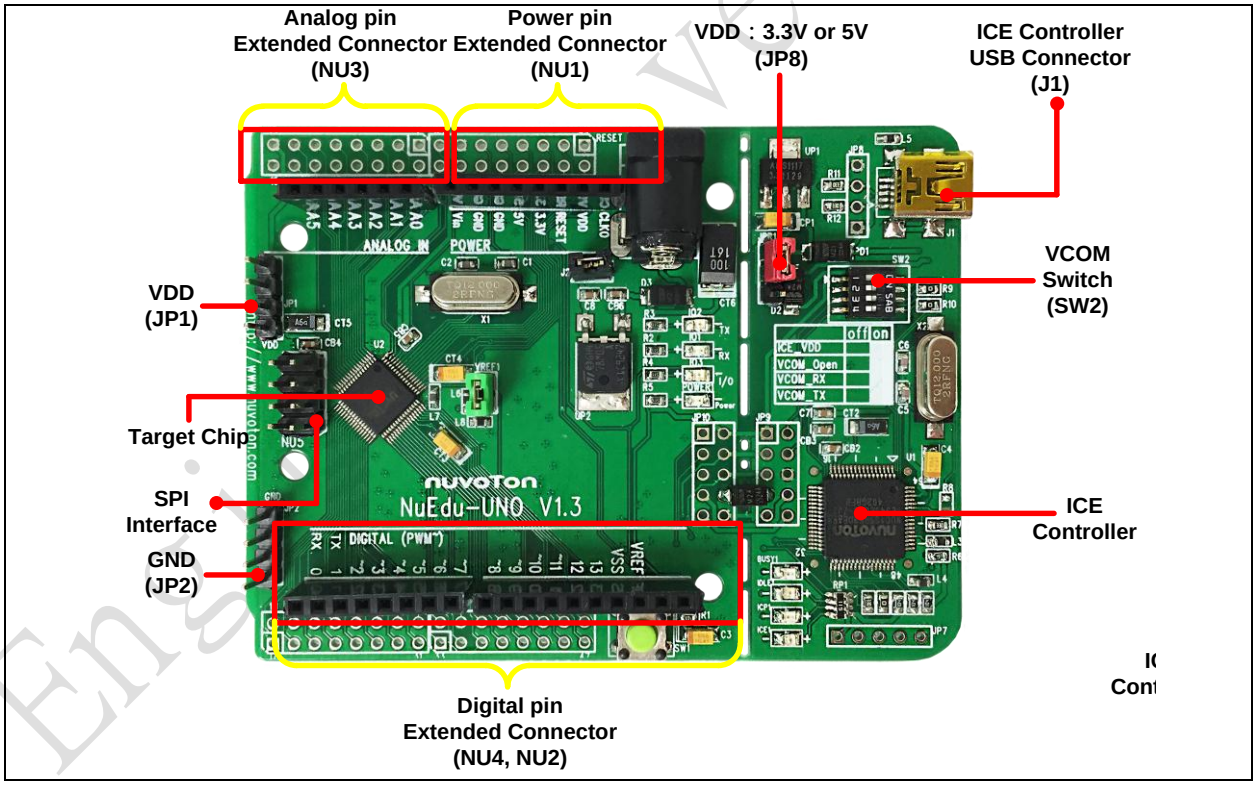

Figure 3-1 NuEdu-UNO-NUC131SD2AE (Green PCB Board is for Engineer version)

Engineer version

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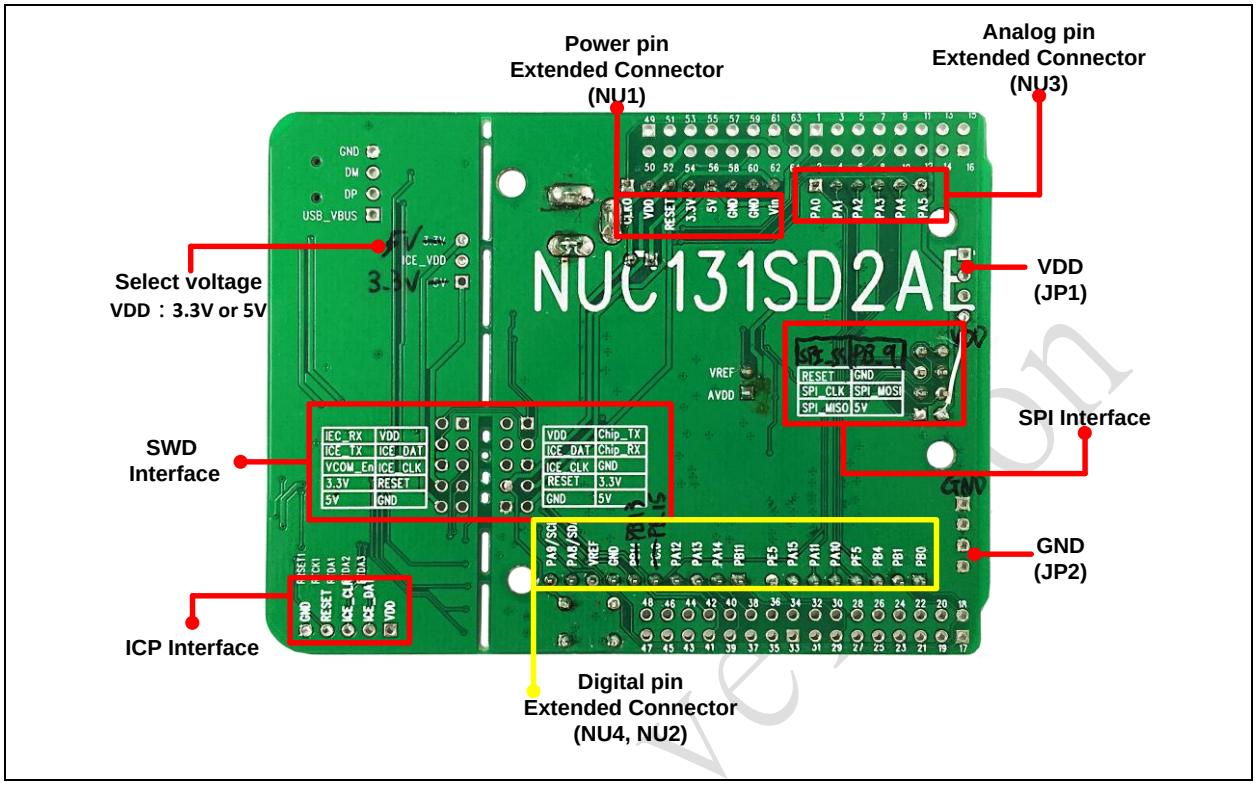

Figure 3-2 NuEdu-UNO-NUC131SD2AE (Green PCB Board is for Engineer version)

Engineers Version

3.1 NuEdu-UNO-NUC131SD2AE Jumper Description

3.1.1 Power Settings

The NuEdu-UNO-NUC131 board can be use three method to provided power for VDD. The VDD power source can use the USB, Transformer(7V ~ 12V) and other power for VDD pin, Please refer to the table below.

Model	JPR1 (selection voltage)	JP1 (VDD provided voltage)	MCU Voltage
USB	Select 5V or 3.3V (default is 5V)	DC 5V or 3.3V output (SW2 pin1 need on)	DC 5V
Other power for VDD pin	X	DC 2.5 V ~ 5.5 V Input	Voltage by JP1 input
Transformer	X	Transformer to DC 7 V ~ 12 V (J2 need short)	DC 5V

- **JP1**: VDD Voltage connecter in NuEdu-UNO-NUC131SD2AE
- **J1**: USB port in Nu-Link-Me
- **SW2**: Pin 1 is ICE VDD connect to target chip VDD
- **Con1**: 7 V ~ 12 V Power JACK
- **J2**: Power JACK connect to VDD Transformer

X: Unused.

Note: when you use the Model3 to provided power, please turn off the SW2 all pin.

3.1.2 Debug Connectors

- **JP10**: Connector in target board (NuEdu-UNO-NUC131SD2AE) for connecting with Nuvoton ICE adaptor (Nu-Link-Me)
- **JP9**: Connector in ICE adaptor (Nu-Link-Me) for connecting with a target board (e.g. NuEdu-UNO-NUC131SD2AE)

3.1.3 USB Connectors

- **J1**: Mini USB Connector in Nu-Link-Me connected to a PC USB port

3.1.4 Extended Connectors

- **JP3**, **JP4**, **JP5** and **JP6**: Show all chip pins in NuEdu-UNO-NUC131SD2AE

3.1.5 Buttons

- **SW1**: Reset button in NuEdu-UNO-NUC131SD2AE

3.1.6 Power Connectors

- **JP1**: VDD connector in NuEdu-UNO-NUC131SD2AE
- **JP2**: VSS connector in NuEdu-UNO-NUC131SD2AE

3.1.7 Power Jumpers

- **JPR1**: Jumper in ICE adaptor (Nu-Link-Me) for power source selection.

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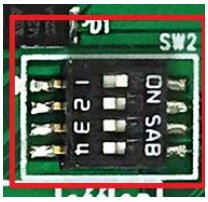
3.1.8 USB Virtual COM function setting

- **SW2**: Open the Virtual COM mode for the debug message in NuEdu-UNO-NUC131SD2AE board.

The Virtual COM function can be use the Arduino IDE, keil and IAR. If you want use this function can be use SW2 to turn on all pin, the target board chip UART0 will be use Virtual COM function, if you want use the UART0 function, please turn off the SW2 pin2 ~ pin4, Please refer to the table below.



The switch default is UART mode

Switch pin number	function name	UART0 mode	VCOM mode
1	ICE_VCC	On	On
2	VCOM_En	Off	On
3	VCOM_TX	Off	On
4	VCOM_RX	Off	On

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3.2 Pin Assignment for Extended Connectors

The NuEdu-UNO-NUC131SD2AE provides the NUC131SD2AE target chip on board and the extended connectors (**JP3**, **JP4**, **JP5** and **JP6**) for LQFP64-pin. The following table is the pin assignment for NUC131SD2AE.

Pin No	Pin Name	Pin No	Pin Name
01	PB.14,INT0	33	PC.11,PWM1_BRAKE1
02	PB.13	34	PC.10,PWM1_BRAKE0
03	PB.12,CLKO,BPWM1_CH3	35	PC.9,PWM0_BRAKE1
04	PF.5,I2C0_SCL,PWM1_CH5	36	PC.8,PWM0_BRAKE0
05	PF.4,I2C0_SDA,PWM1_CH4	37	PA.15,PWM0_CH3
06	PA.11,I2C1_SCL,PWM1_CH3	38	PA.14,PWM0_CH2
07	PA.10,I2C1_SDA,PWM1_CH2	39	PA.13,PWM0_CH1,UART5_TXD
08	PA.9,I2C0_SCL,UART1_nCTS	40	PA.12,PWM0_CH0,UART5_RXD
09	PA.8,I2C0_SDA,UART1_nRTS	41	PF.7,ICE_DAT
10	PB.4,UART1_RXD	42	PF.6,ICE_CLK
11	PB.5,UART1_TXD	43	AVSS
12	PB.6,UART1_nRTS	44	PA.0,PWM0_CH4,ADC0,I2C1_SC
13	PB.7,UART1_nCTS	45	PA.1,PWM0_CH5,ADC1,I2C1_SD
14	LDO_CAP	46	PA.2,PWM1_CH0,ADC2,UART3_
15	VDD	47	PA.3,PWM1_CH1,ADC3,UART3_
16	VSS	48	PA.4,ADC4
17	PB.0,UART0_RXD	49	PA.5,UART3_RXD,ADC5
18	PB.1,UART0_TXD	50	PA.6,UART3_TXD,ADC6
19	PB.2,UART0_nRTS,TM2_EXT,TM	51	PA.7,Vref,ADC7
20	PB.3,UART0_nCTS,TM3_EXT,TM	52	AVDD
21	PD.6,BPWM1_CH1,CAN0_RXD	53	PC.7,PWM0_BRAKE1,I2C0_SCL,
22	PD.7,BPWM1_CH0,CAN0_TXD	54	PC.6,PWM0_BRAKE0,I2C0_SDA,
23	PD.14,BPWM0_CH5,UART2_RXD	55	PC.15
24	PD.15,BPWM0_CH4,UART2_TXD	56	PC.14
25	PC.3,BPWM0_CH3,SPI0_MOSI0	57	PB.15, ,BPWM1_CH5TM0,TM0_E
26	PC.2,BPWM0_CH2,SPI0_MISO0	58	PF.0,XT1_OUT
27	PC.1,BPWM0_CH1,SPI0_CLK	59	PF.1,XT1_IN
28	PC.0,BPWM0_CH0,SPI0_SS0	60	nRESET
29	PE.5,PWM0_CH5,TM1_EXT,TM1	61	VSS
30	PB.11,TM3,PWM0_CH4	62	VDD
31	PB.10,TM2	63	PF.8, PWM1_CH4,CLKO
32	PB.9,TM1	64	PB.8,BPWM1_CH2,CLKO,TM0,ST

Table 3-1 Pin Assignment for NUC131SD2AE

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3.3 Arduino pin assignment for NuEdu-UNO-NUC131SD2AE

The NuEdu-UNO-NUC131SD2AE provides the NUC131SD2AE target chip on board and the extended connectors (**NU1**, **NU2**, **NU3** and **NU4**) for LQFP64-pin. The following table is the pin assignment for NuEdu-UNO-NUC131SD2AE.

	Pin No	Pin Name	Pin No	Pin Name
Clock	1	CLKO	5	5V
Power	2	VCC	6	GND
	3	RESET	7	GND
	4	3.3V	8	Vin
Analog	1	A0	4	A3
	2	A1	5	A4
	3	A2	6	A5
Digital	0	PB.0/UART_RX0	9	PA.14/PWM0_CH2
	1	PB.1/UART_TX0	10	PA.13/PWM0_CH1
	2	PF.4/PWM1_CH4	11	PA.12/PWM0_CH0
	3	PF.5/PWM1_CH5	12	PB.15/TM0/INT1
	4	PA.10/PWM1_CH2	13	PB.13(LED)
	5	PA.11/PWM1_CH3	VSS	VSS
	6	PA.15/PWM0_CH3	VREF	VREF
	7	PE.5/PWM0_CH5	I2C	PA.8/SDA
	8	PB.11/PWM0_CH4	I2C	PA.9/SCL
SPI Interface	1	PC.2/SPI0_MISO	5	RESET
	2	VDD	6	GND
	3	PC.1/SPI0_CLK	7	PC.0/SPI0_SS
	4	PC.3/SPI0_MOSI	8	PB.9/TM1

Table 3-2 Pin Assignment for NuEdu-UNO-NUC131SD2AE

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3.4 NuEdu-UNO-NUC131SD2AE portrait

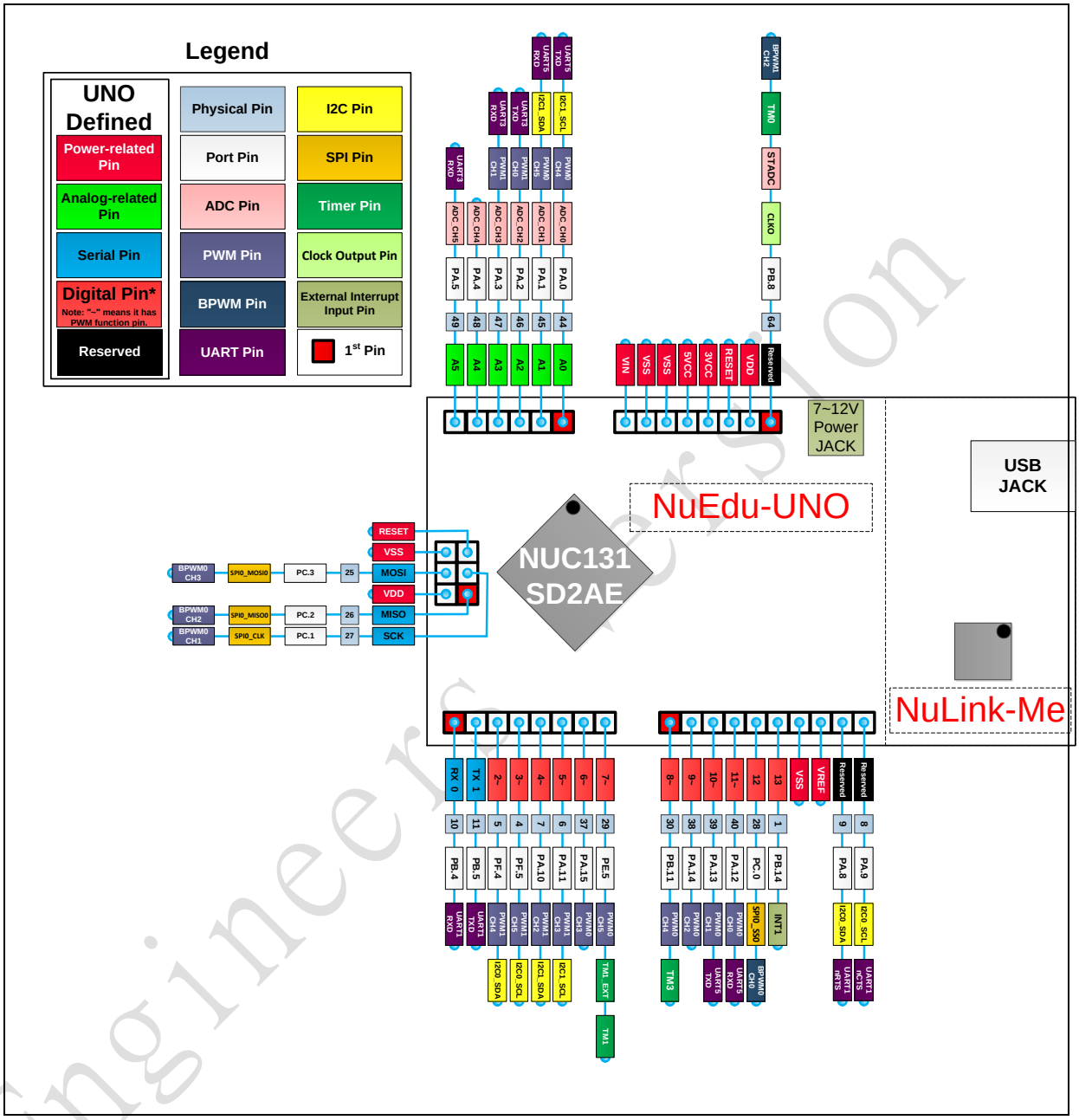

Figure 3-3 NuEdu-UNO-NUC131SD2AE pin design for Arduino

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3.5 NuEdu-UNO-NUC131SD2AE PCB Placement

The following figure shows the NuEdu-UNO-NUC131SD2AE PCB placement.

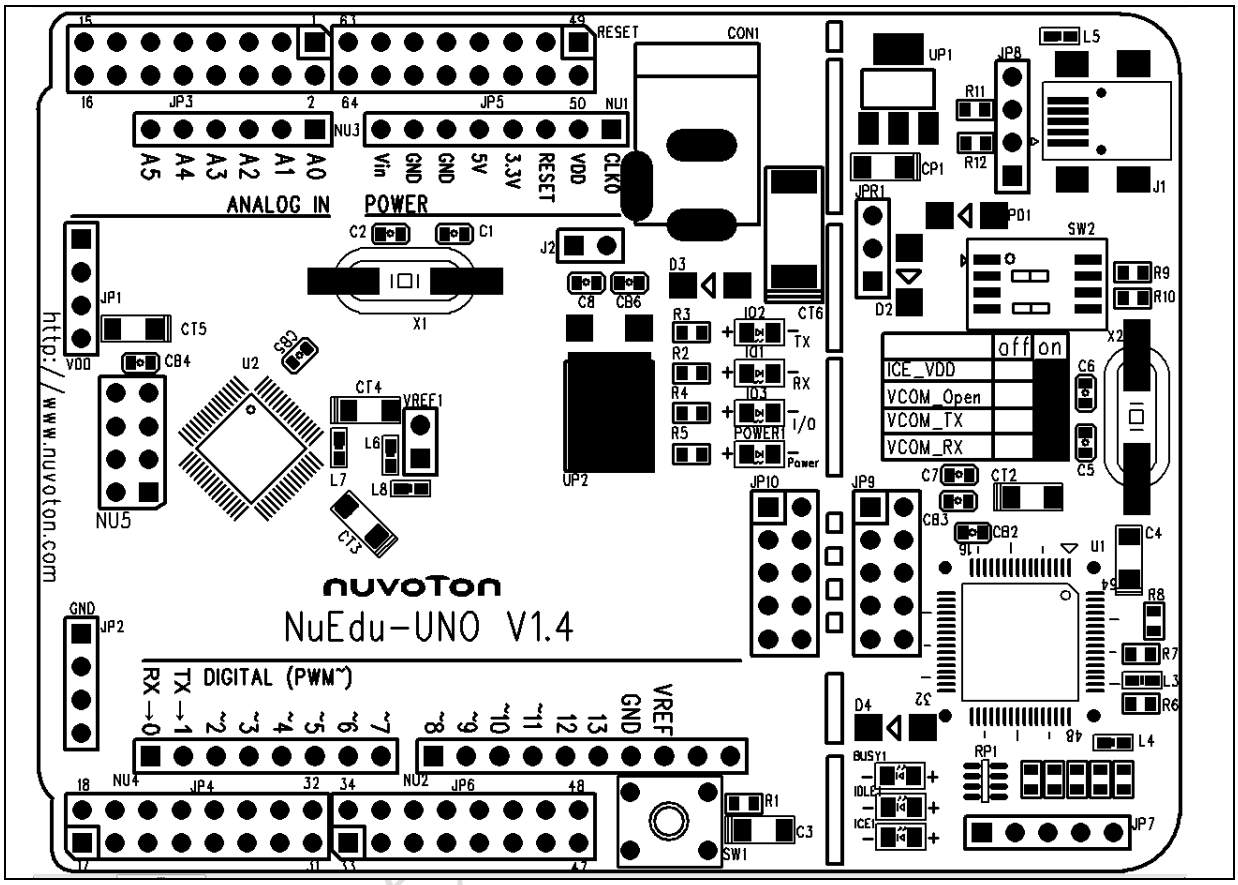

Figure 3-4 NuEdu-UNO-NUC131SD2AE PCB Placement

Engineering

4 Starting to Use NuEdu-UNO-NUC131SD2AE on the Keil µVision® IDE

4.1 Downloading and Installing Keil µVision® IDE Software

Please connect to the Keil company website (http://www.keil.com) to download the Keil µVision® IDE and install the RVMDK.

4.2 Downloading and Installing Nuvoton Nu-Link Driver

Please connect to Nuvoton NuMicro™ website (http://www.nuvoton.com/NuMicro) to download the "*NuMicro™ Keil µVision® IDE drive*r" file. Please refer to *section 8.1* for the detailed download flow. After the Nu-Link driver is downloaded, please unzip the file and execute the "*Nu-Link_Keil_Driver.exe*" to install the driver.

4.3 Hardware Setup

The hardware setup is shown in the following figure. If want use the VCOM function, please turn on the SW2 all pin ,can be use the VCOM function. Please refer the 3.1.8 section.

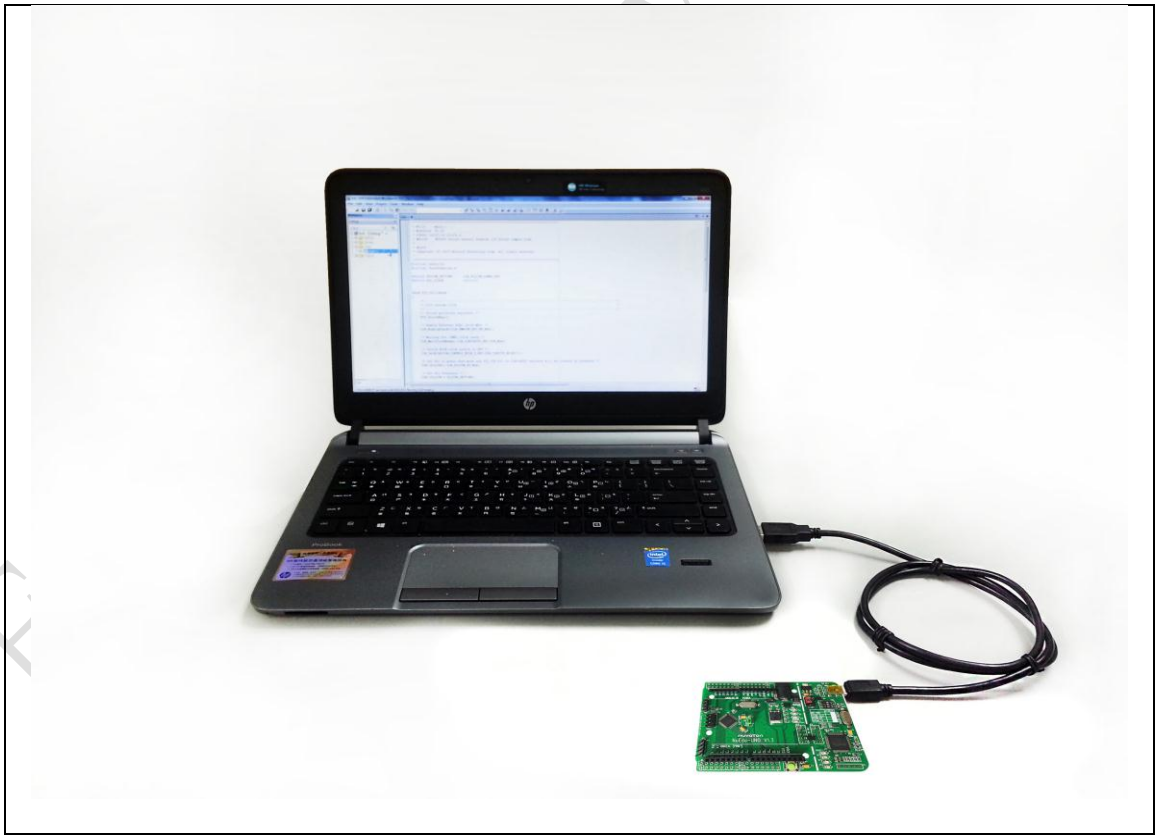

Figure 4-1 NuEdu-UNO- NUC131SD2AE Hardware Setup

4.4 Example Program

This example demonstrates how to download and debug an application on a NuEdu-UNO-NUC131SD2AE board.
The example file can be found in the directory list shown in the following figure.

Step1: Open the Project

Please open the under path.
"C:\Nuvoton\BSP Library\NUC131BSP_CMSIS_v3.00.001\SampleCode\StdDriver\ADC_ResultMonitor\KEIL"

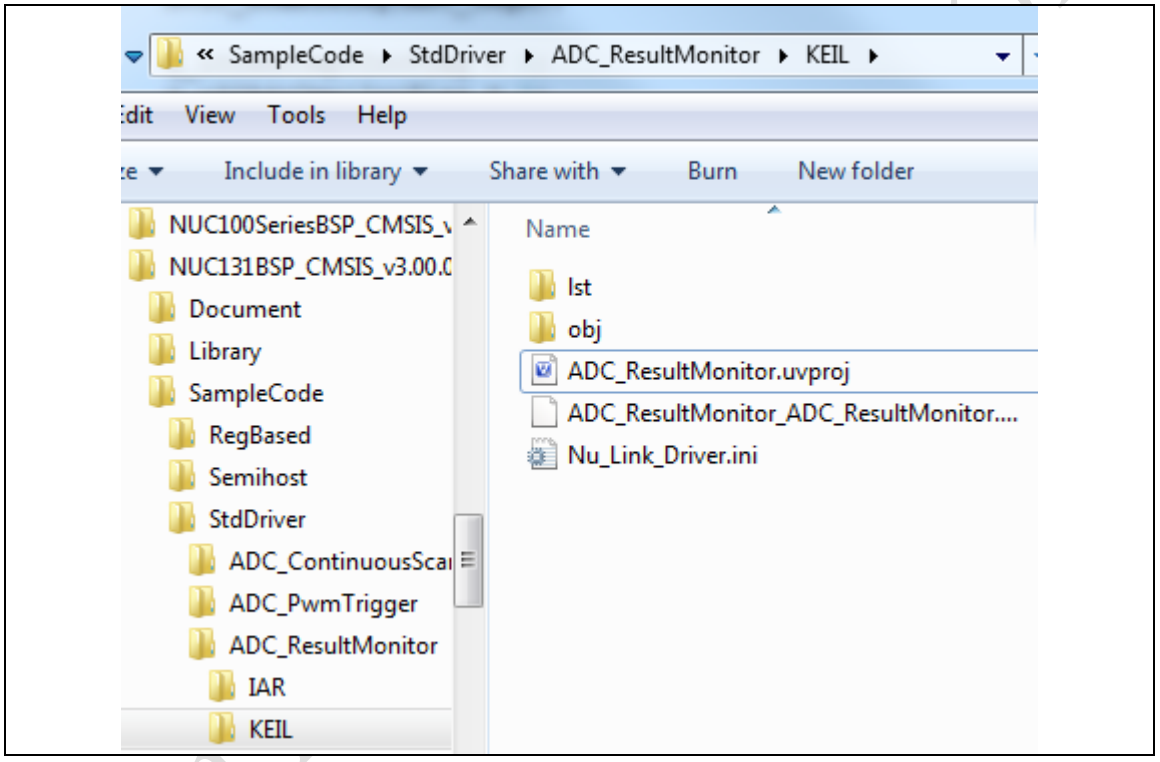

Figure 4-2 NuEdu-UNO- NUC131SD2AE Hardware Setup

Step2: Check your chip and debug chip
Please open the target options to check device chip is correct and debug chip selection is correct.

Preliminary

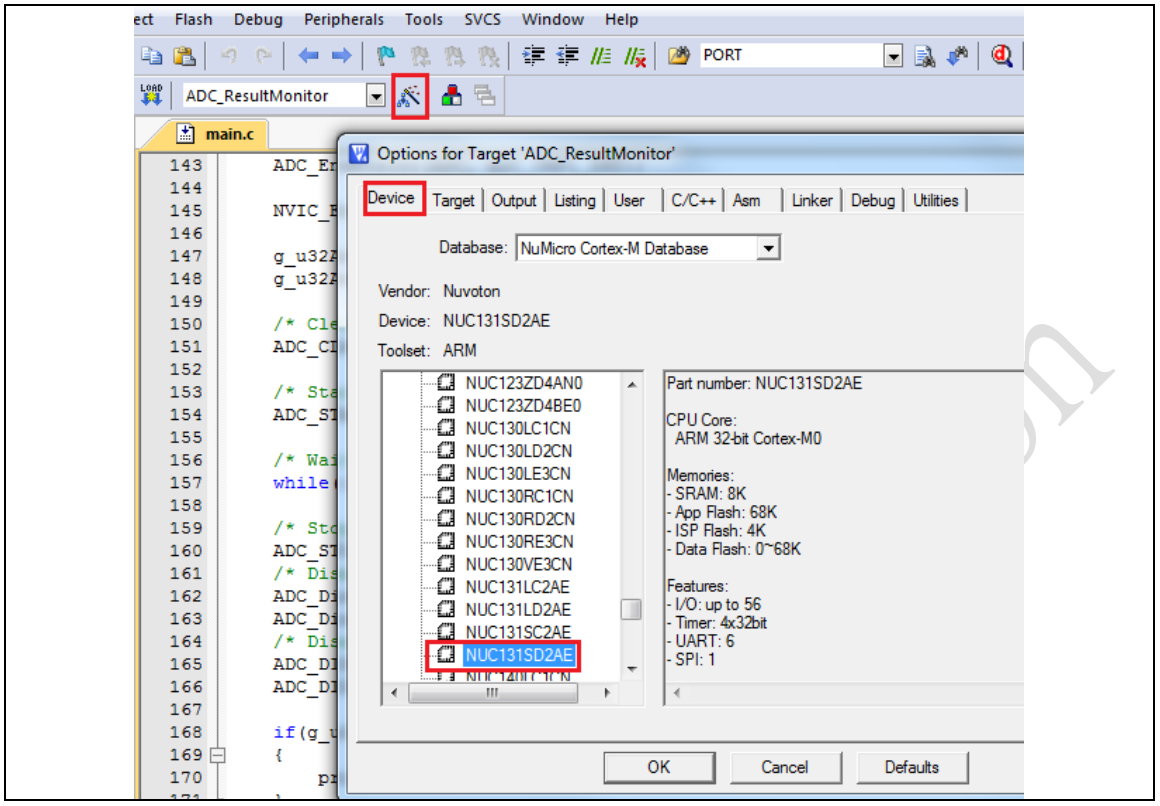

Figure 4-3 NuEdu-UNO- NUC131SD2AE Hardware Setup

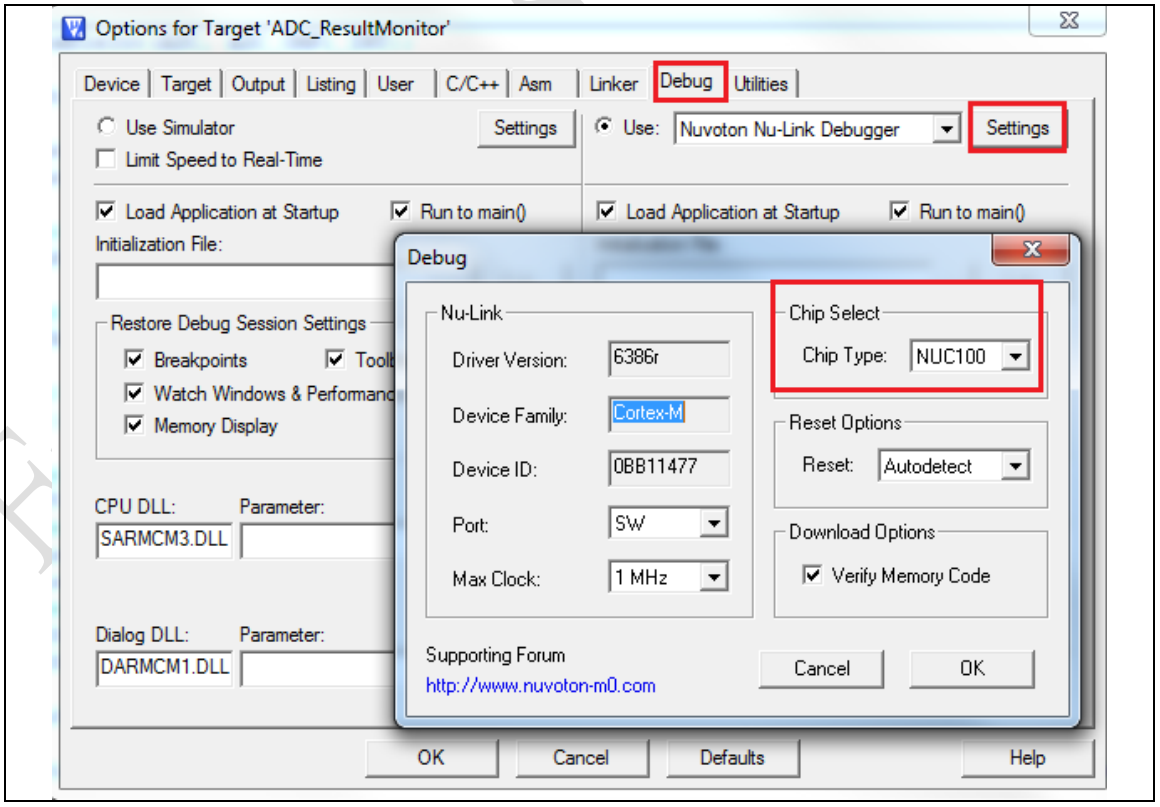

Figure 4-4 NuEdu-UNO- NUC131SD2AE Hardware Setup

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Step3: Build and download your code

Build

Download

Step4: Open the serial monitor and setting the baud rate

User can open the serial monitor to print debug message.
The example is use “PuTTY tool” .

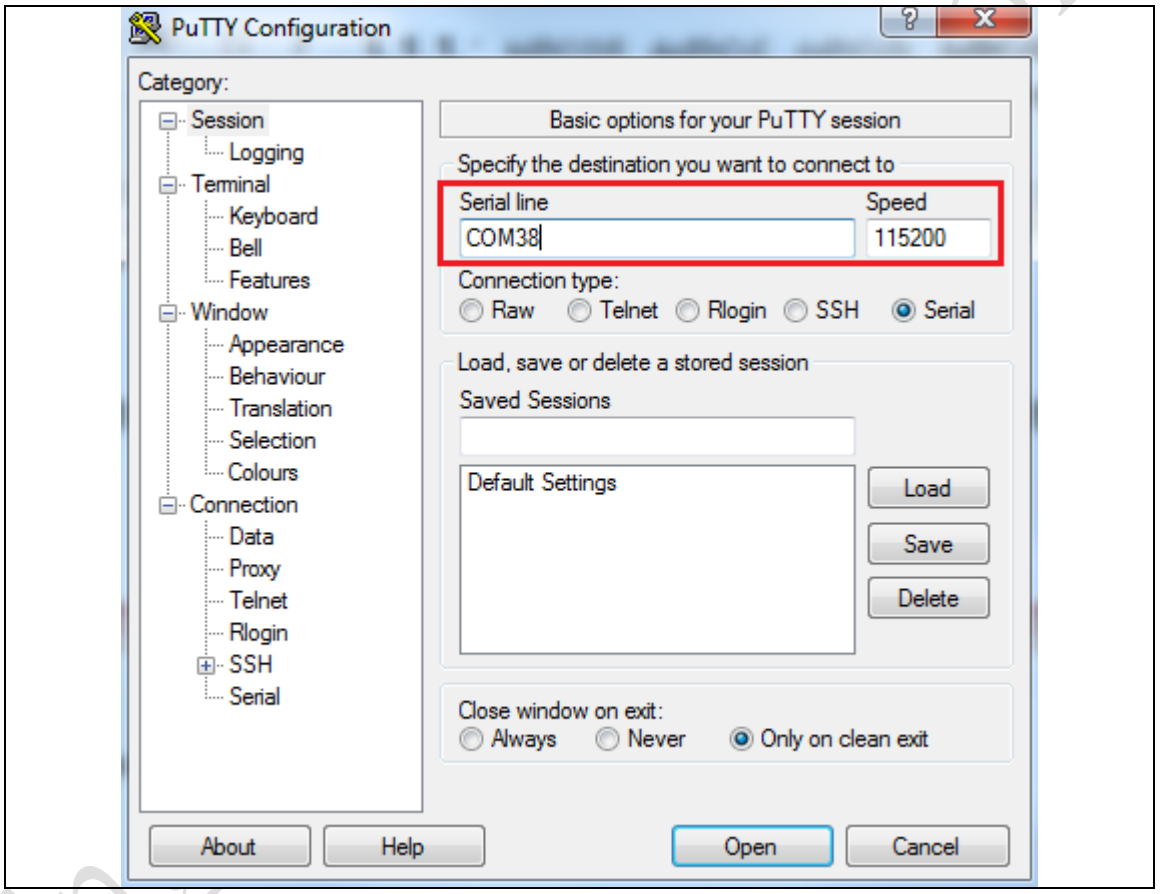

Figure 4-5 NuEdu-UNO- NUC131SD2AE Hardware Setup

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Step4: Please touch the reset key to run your code.

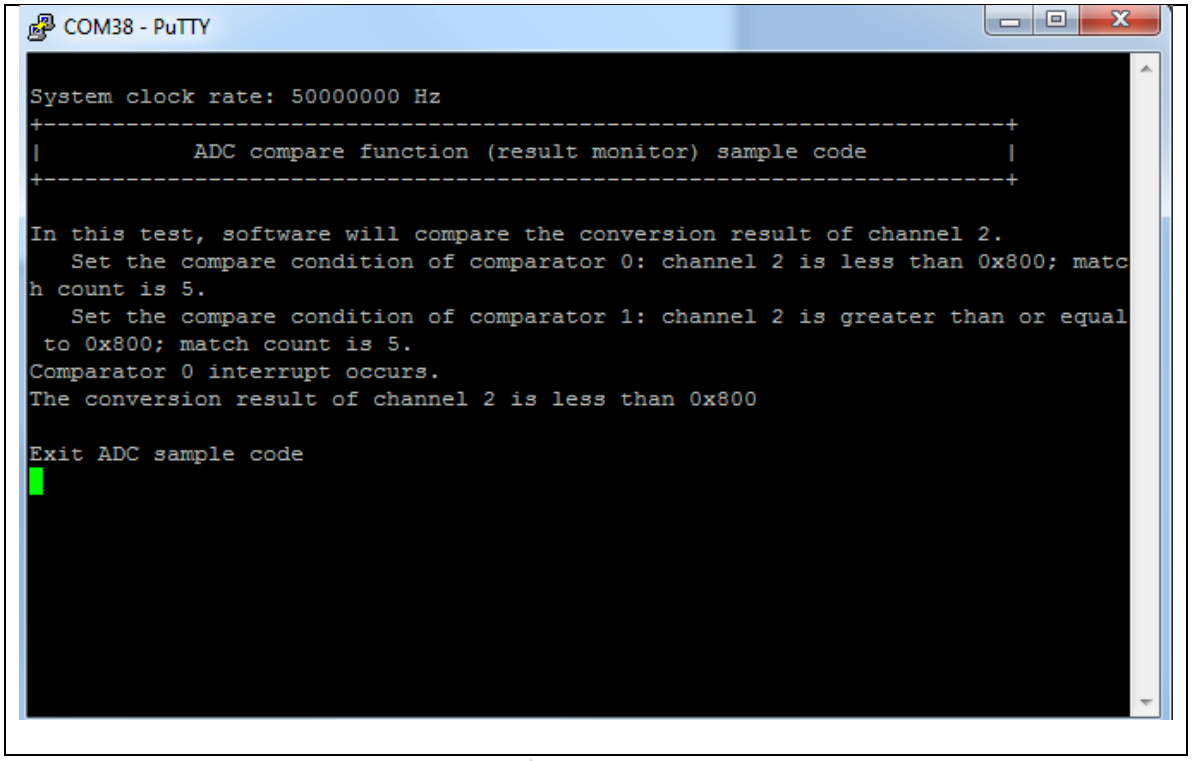
COM38 - PuTTY
System clock rate: 50000000 Hz
+--+
| ADC compare function (result monitor) sample code |
+--+
In this test, software will compare the conversion result of channel 2.
   Set the compare condition of comparator 0: channel 2 is less than 0x800; matc
h count is 5.
   Set the compare condition of comparator 1: channel 2 is greater than or equal
 to 0x800; match count is 5.
Comparator 0 interrupt occurs.
The conversion result of channel 2 is less than 0x800
Exit ADC sample code

Figure 4-6 NuEdu-UNO- NUC131SD2AE Hardware Setup

Illustration Description:

- **Start µVision®**
- **Project – Open**
  Open the SYS.uvproj project file
- **Project – Build**
  Compile and link the SYS application
- **Flash – Download**
  Program the application code into on-chip Flash ROM
- **Start Debug mode**
  When using the debugger commands, you may:
  - Review variables in the watch window
  - Single step through code
  - Reset the device
  - Run the application

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5 Starting to Use NuEdu-UNO-NUC131SD2AE on the IAR Embedded Workbench

5.1 Downloading and Installing IAR Embedded Workbench Software

Please connect to IAR company website (http://www.iar.com) to download the IAR Embedded Workbench and install the EWARM.

5.2 Downloading and Installing Nuvoton Nu-Link Driver

Please connect to Nuvoton Company NuMicro™ website (http://www.nuvoton.com/NuMicro) to download "NuMicro™ IAR EWARM Driver" file. Please refer to *section* 8.2 for the detail download flow. After the Nu-Link driver is downloaded, please unzip the file and execute the "Nu-Link_IAR_Driver.exe" to install the driver.

5.3 Hardware Setup

The hardware setup is shown in the following figure. If want use the VCOM function, please turn on the SW2 all pin ,can be use the VCOM function. Please refer the 3.1.8 section.

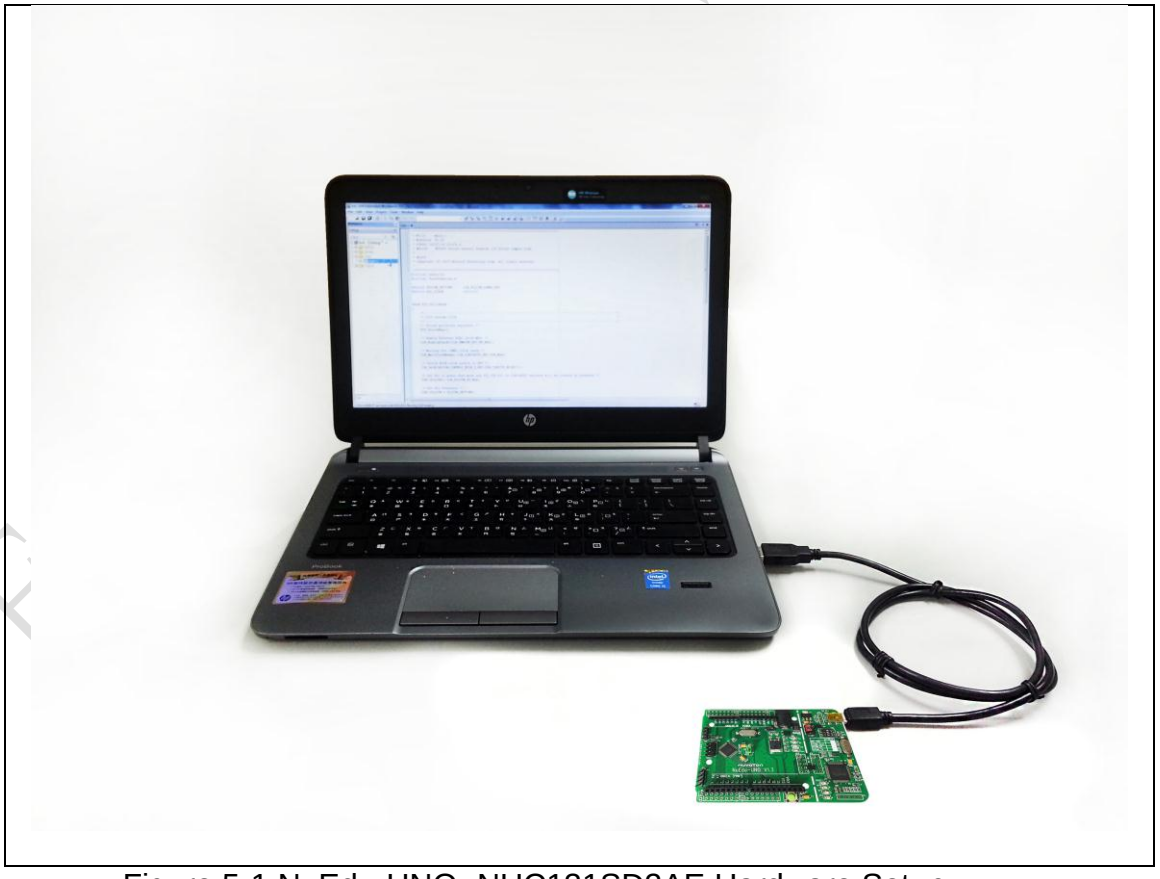

Figure 5-1 NuEdu-UNO- NUC131SD2AE Hardware Setup

5.4 Example Program

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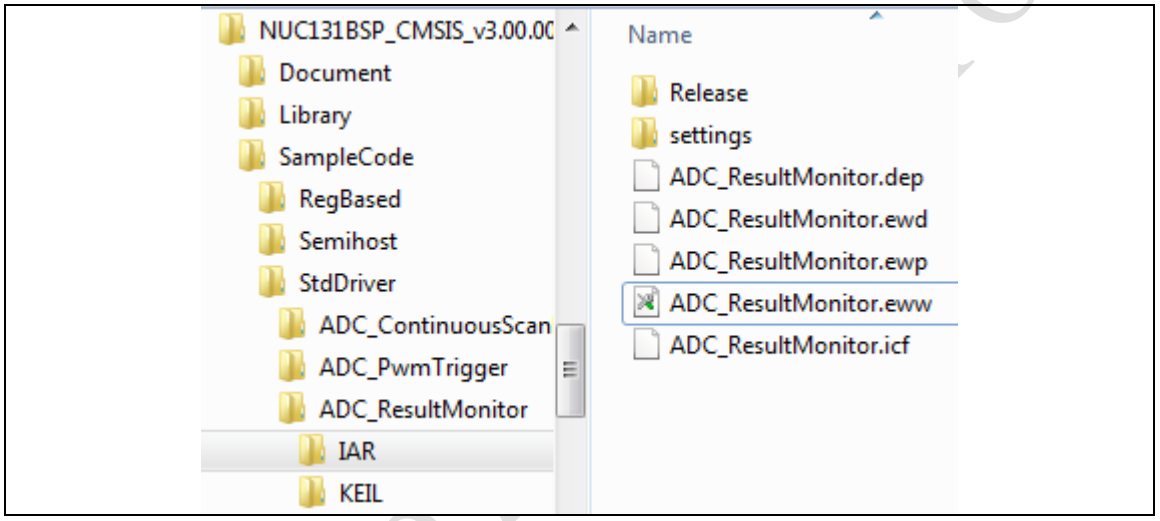

Figure 5-2 NuEdu-UNO- NUC131SD2AE Hardware Setup

Step2: Download the sample code

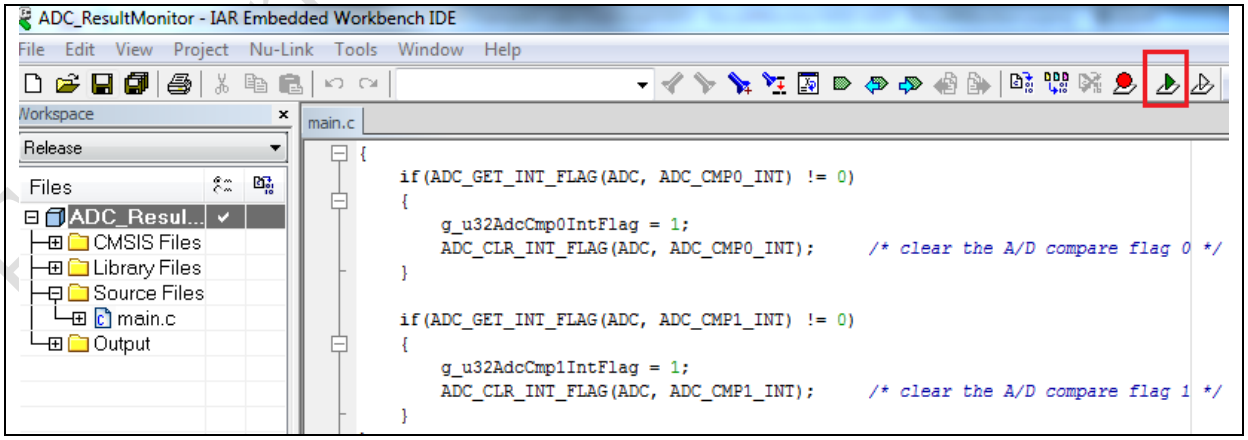

Figure 5-3 NuEdu-UNO- NUC131SD2AE Hardware Setup

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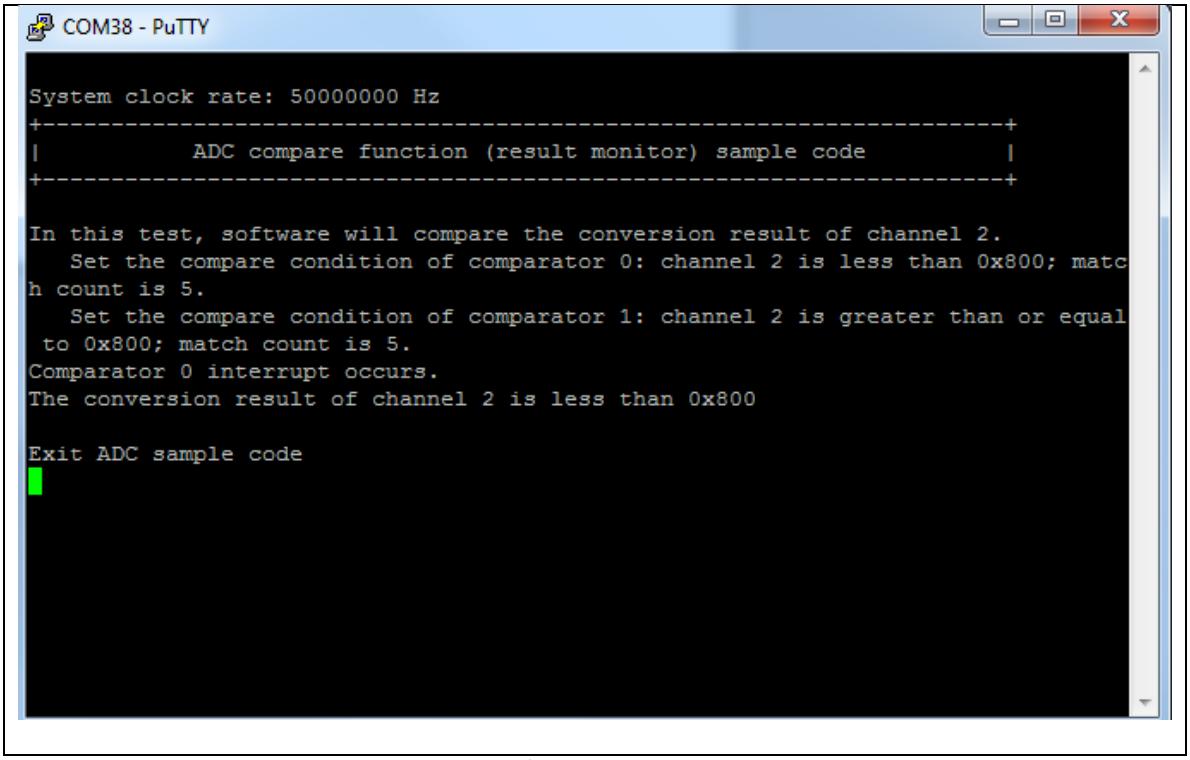
Step3: Please touch the reset key to run your code.


COM38 - PuTTY
System clock rate: 50000000 Hz
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Comparator 0 interrupt occurs.
The conversion result of channel 2 is less than 0x800
Exit ADC sample code

Figure 5-4 NuEdu-UNO- NUC131SD2AE Hardware Setup

Illustration Description:

- **Start IAR Embedded Workbench**
- **File-Open-Workspace**
  Open the SYS.eww workspace file
- **Project - Make**
  Compile and link the SYS application
- **Project – Download and Debug**
  Program the application code into on-chip Flash ROM
  - Single step through code
  - Reset the device
  - Run the application

Engineers

6 Starting to Use NuEdu-UNO-NUC131SD2AE on the Arduino IDE

6.1 Downloading and Installing Arduino IDE Software

Please connect to the Arduino company website (http://arduino.cc/en/Main/Software) to download the Arduino IDE and install the file.

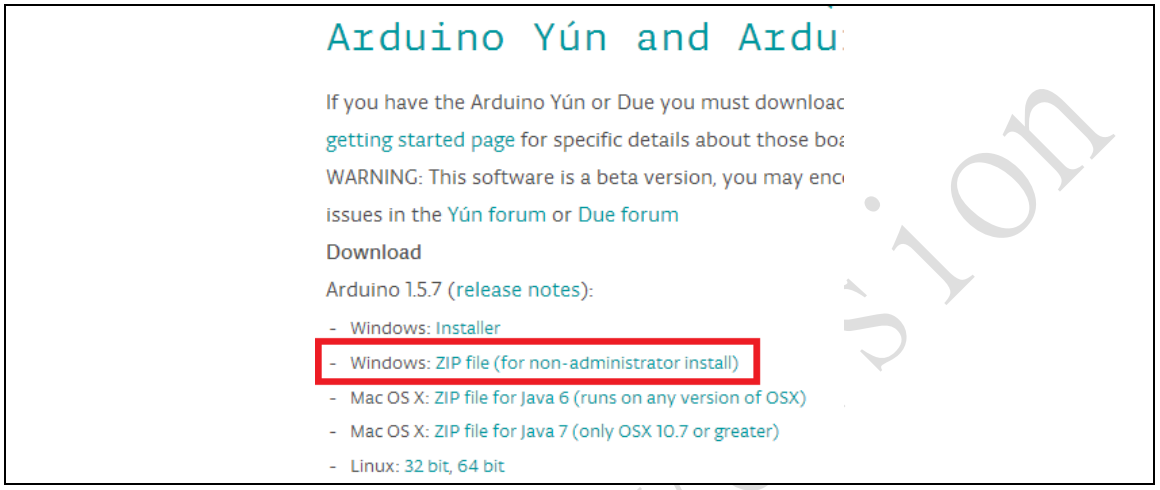
Arduino Yún and Ardu
If you have the Arduino Yún or Due you must downloac
getting started page for specific details about those boa
WARNING: This software is a beta version, you may enc
issues in the Yún forum or Due forum
Download
Arduino 1.5.7 (release notes):
- Windows: Installer
- Windows: ZIP file (for non-administrator install)
- Mac OS X: ZIP file for Java 6 (runs on any version of OSX)
- Mac OS X: ZIP file for Java 7 (only OSX 10.7 or greater)
- Linux: 32 bit, 64 bit

Figure 6-1 Download Arduino 1.5.8

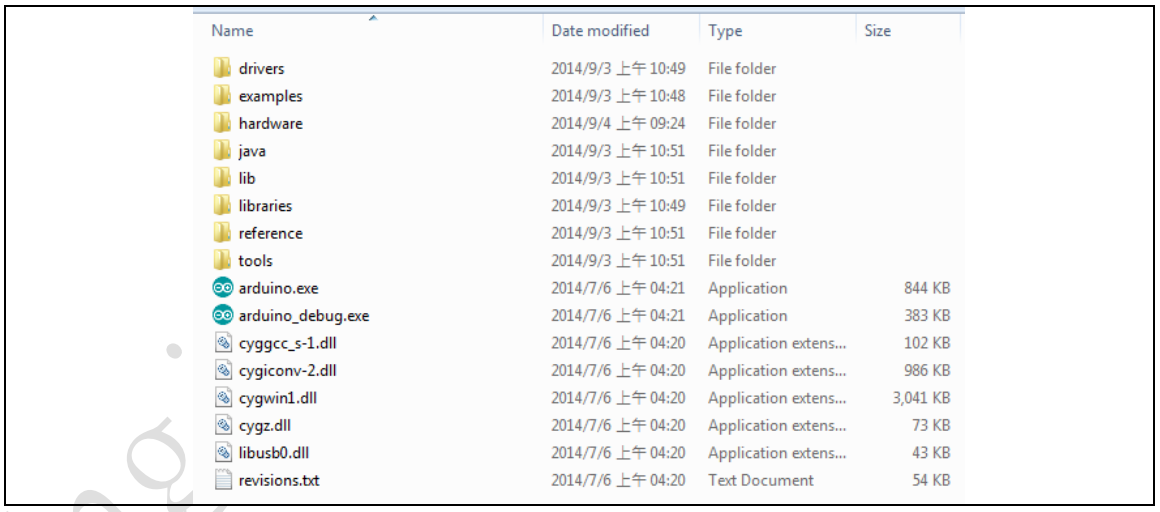
Name
Date modified
Type
Size
drivers 2014/9/3 上午 10:49 File folder
examples 2014/9/3 上午 10:48 File folder
hardware 2014/9/4 上午 09:24 File folder
java 2014/9/3 上午 10:51 File folder
lib 2014/9/3 上午 10:51 File folder
libraries 2014/9/3 上午 10:49 File folder
reference 2014/9/3 上午 10:51 File folder
tools 2014/9/3 上午 10:51 File folder
arduino.exe 2014/7/6 上午 04:21 Application 844 KB
arduino_debug.exe 2014/7/6 上午 04:21 Application 383 KB
cyggcc_s-1.dll 2014/7/6 上午 04:20 Application extens... 102 KB
cygiconv-2.dll 2014/7/6 上午 04:20 Application extens... 986 KB
cygwin1.dll 2014/7/6 上午 04:20 Application extens... 3,041 KB
cygz.dll 2014/7/6 上午 04:20 Application extens... 73 KB
libusb0.dll 2014/7/6 上午 04:20 Application extens... 43 KB
revisions.txt 2014/7/6 上午 04:20 Text Document 54 KB

Figure 6-2 Extract Arduino 1.5.8

6.2 Installing Nuvoton Nu-Link Driver

“NUC131_Patch_For_Arduino1.5.8” is Arduino IDE driver file. Please installation to Arduino file. If your Arduino file install version is greater than V1.5.8 maybe can use, but if any modfiy does not guarantee can be use the function.

EX: Arduino IDE V1.6 version have modify SPI function, but the V1.5.8 version it no have the function, So if use the new SPI function maybe have problom.

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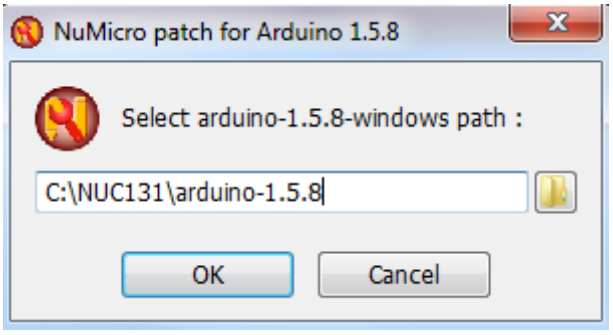

Figure 6-3 Install NuMicro Arduino Patch

6.3 Installing NuLink USB Driver

The “Nu-Link_USB_Driver 1.0” is Nu-Link me Driver, you can find the file in “Development tool\NuEdu UNO” path.

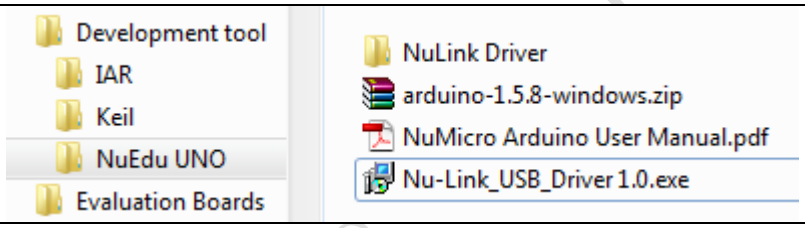

Figure 6-4 Install NuLink USB Driver

6.4 Hardware Setup

The hardware setup is shown in the following figure, and we need test your VCOM setting is OK, so you need will SW2 turn on by all pin, and next step.

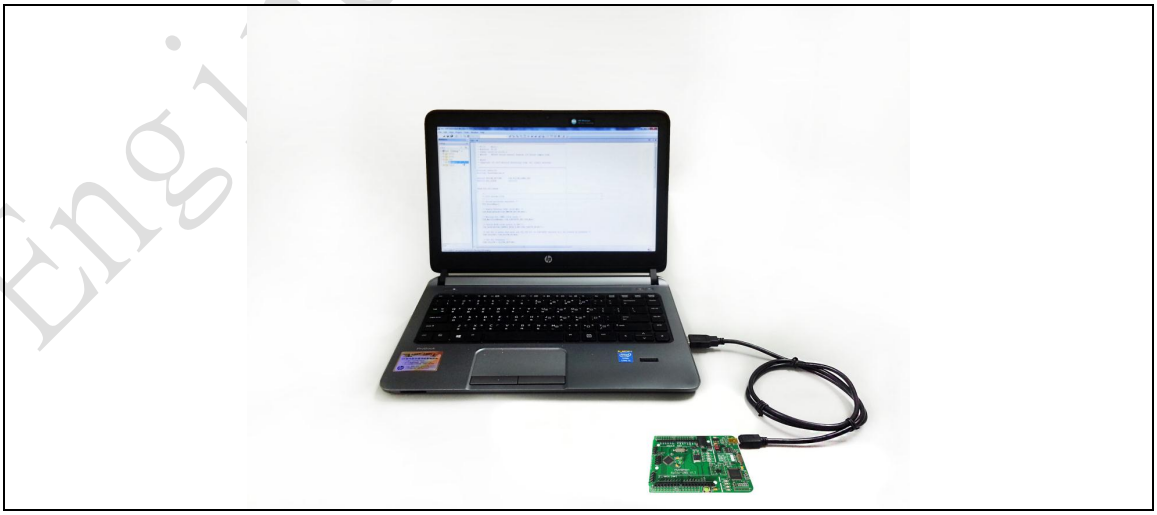

Figure 6-5 NuEdu-UNO- NUC131SD2AE Hardware Setup

Engineering Version

6.5 Test USB Device in the Device Manager

If your device is unavailable, please installation NuLink USB driver again in the "C:\Program Files\Nuvoton Tools\ICPTool**Nu-Link_USB_Driver 1.0.exe**"

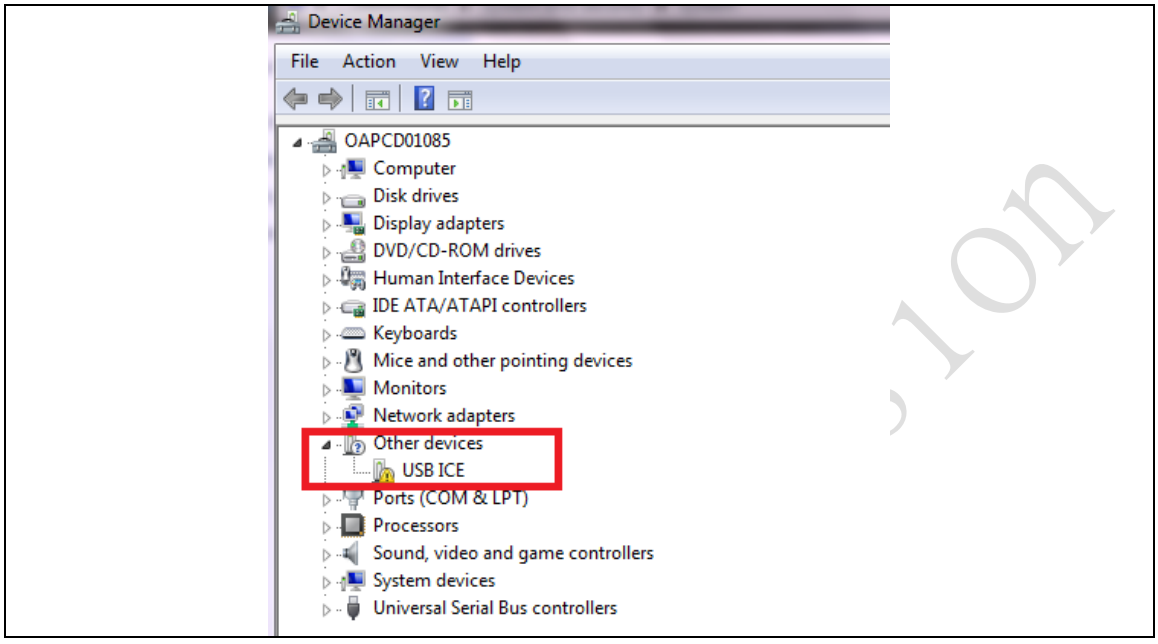

Figure 6-6 USB device is unavailable

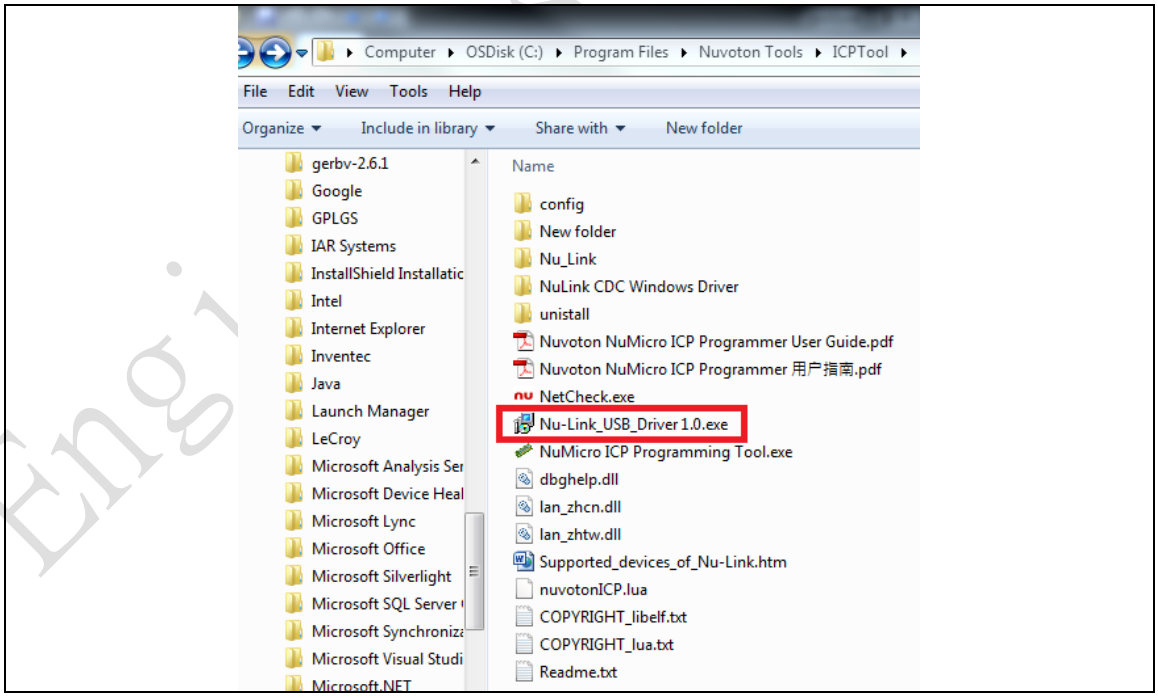

Figure 6-7 Installation NuLink USB Driver

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6.6 Example Program

This example demonstrates how to download and debug an application on a NuEdu-UNO-NUC131SD2AE board.
When you installation the patch, can be found the “NuEdu-NUC131” in Arduino IDE as shown if figure below.

Open the “arduino_debug.exe” file in the install path.

Step1: selection chip

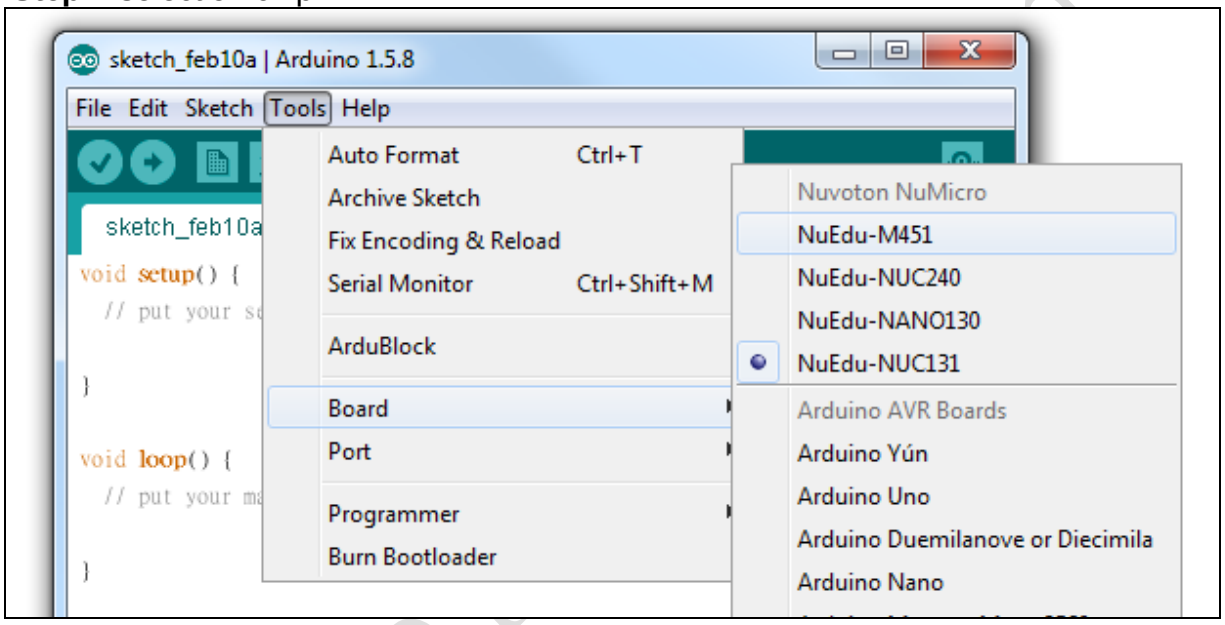

Figure 6-8 NuEdu-UNO-NUC131SD2AE Hardware Setup

Step2: selection debug port

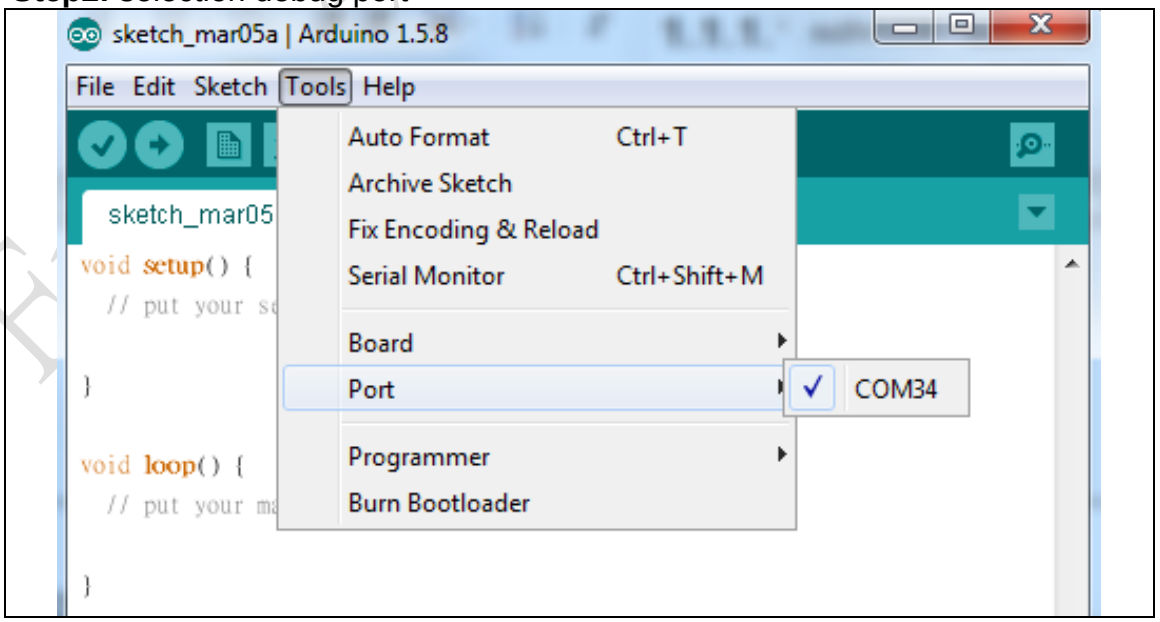

Figure 6-9 NuEdu-UNO-NUC131SD2AE Hardware Setup

Step3: Open the sample code
File -> Examples -> 03.Analog -> AnalogInOutSerial

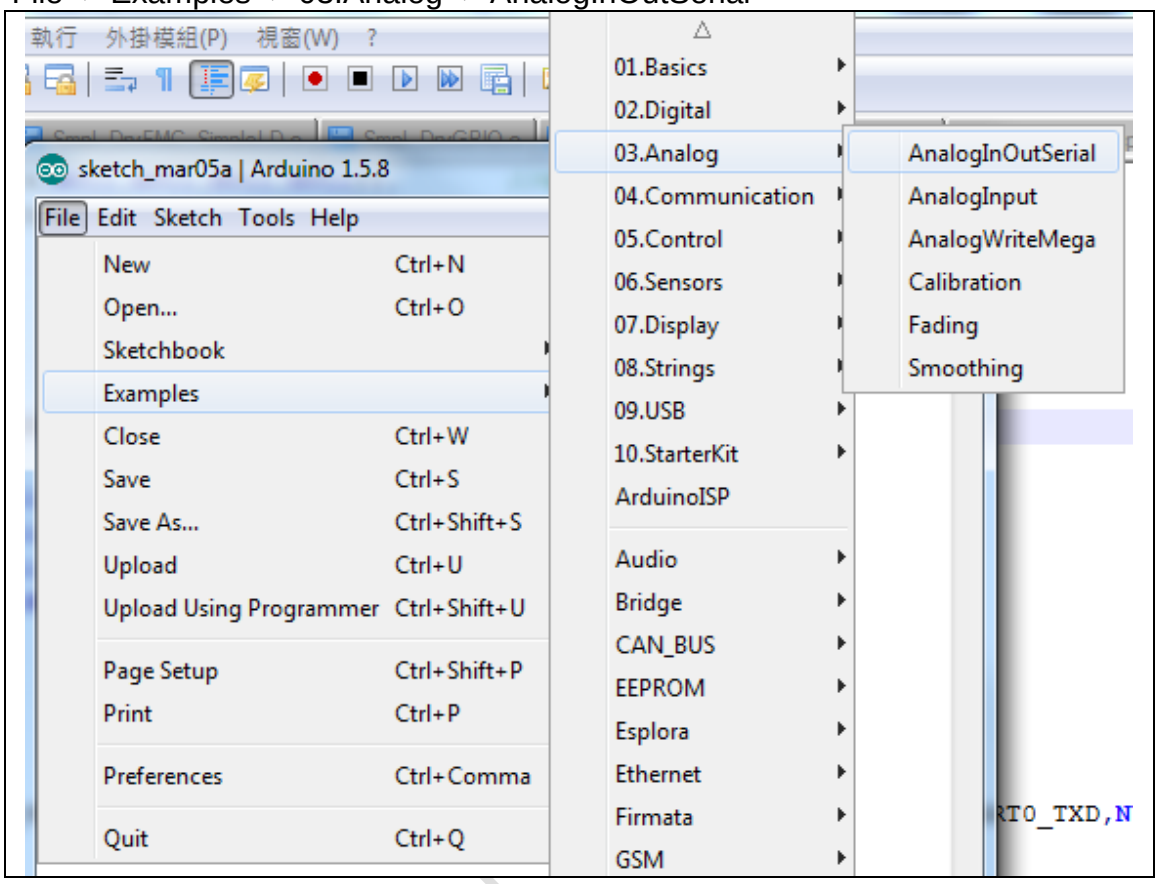

Figure 6-10 NuEdu-UNO-NUC131SD2AE Hardware Setup

Step4: Download the sample code
User can use upload button to compiling and load code to target board or use verify button to compiling code.

Upload: This button can be comiling and load code to target board.

Verify: This button can be compiling code .

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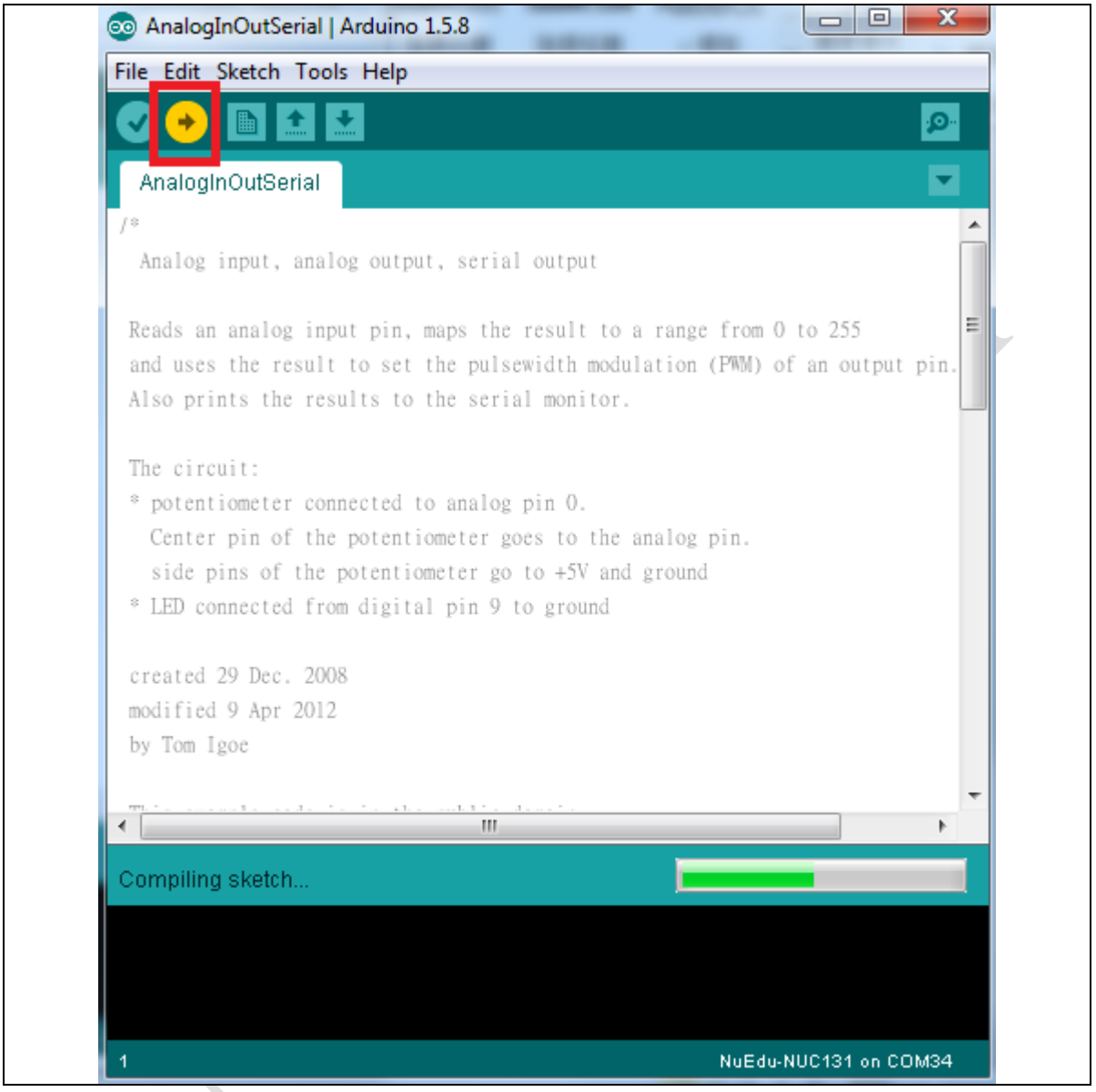
AnalogInOutSerial | Arduino 1.5.8
File Edit Sketch Tools Help
AnalogInOutSerial
/*
Analog input, analog output, serial output
Reads an analog input pin, maps the result to a range from 0 to 255
and uses the result to set the pulsewidth modulation (PWM) of an output pin.
Also prints the results to the serial monitor.
The circuit:
* potentiometer connected to analog pin 0.
Center pin of the potentiometer goes to the analog pin.
side pins of the potentiometer go to +5V and ground
* LED connected from digital pin 9 to ground
created 29 Dec. 2008
modified 9 Apr 2012
by Tom Igoe
Compiling sketch...
1
NuEdu-NUC131 on COM34

Figure 6-11 NuEdu-UNO-NUC131SD2AE Hardware Setup

Step5: Check the correctness of the Baud Rate
User can check Baud Rate whether the same serial monitor speed.

This sample code is use ADC0 function, user can use the serial monitor shows VCOM through the value of the ADC conversion out. So user can use ADC0 to touch VDD or GND can be look the ADC conversion value.

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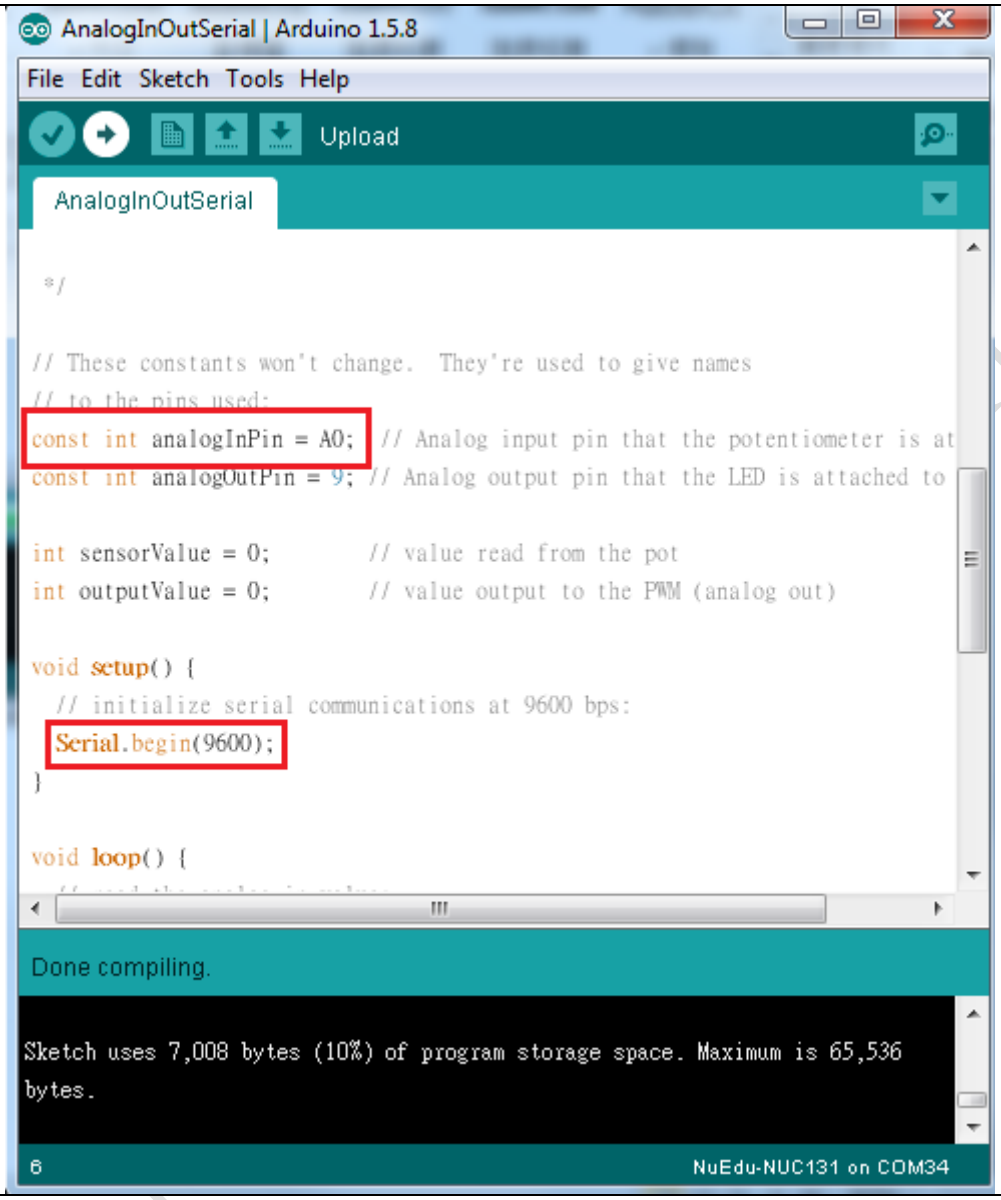

AnalogInOutSerial | Arduino 1.5.8
File Edit Sketch Tools Help
Upload
AnalogInOutSerial
*/
// These constants won't change. They're used to give names
// to the pins used:
const int analogInPin = A0; // Analog input pin that the potentiometer is at
const int analogOutPin = 9; // Analog output pin that the LED is attached to
int sensorValue = 0; // value read from the pot
int outputValue = 0; // value output to the PWM (analog out)
void setup() {
// initialize serial communications at 9600 bps:
Serial.begin(9600);
}
void loop() {
Done compiling.
Sketch uses 7,008 bytes (10%) of program storage space. Maximum is 65,536 bytes.
6
NuEdu-NUC131 on COM34

Figure 6-12 NuEdu-UNO-NUC131SD2AE Hardware Setup

Engineering Sample

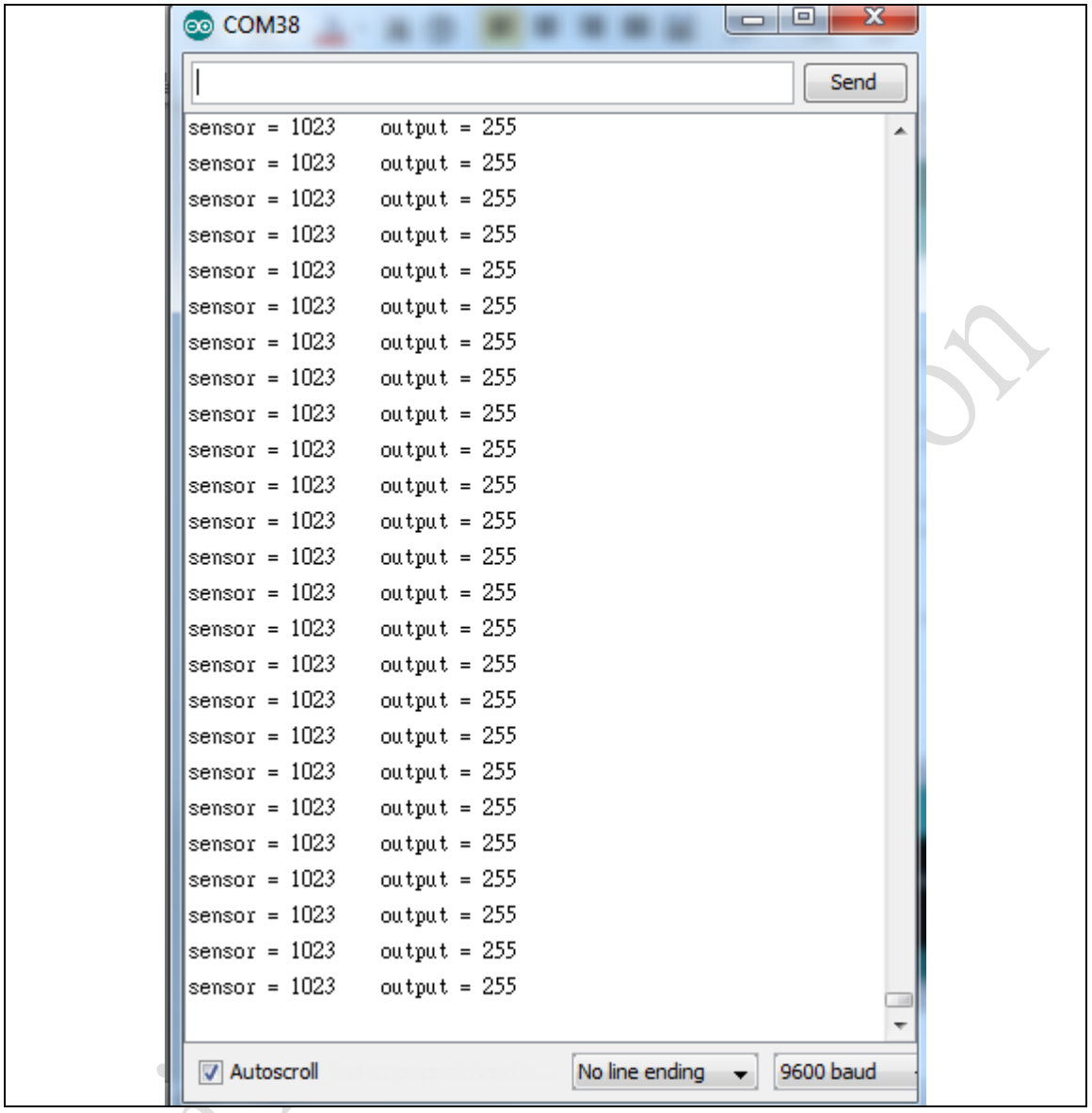
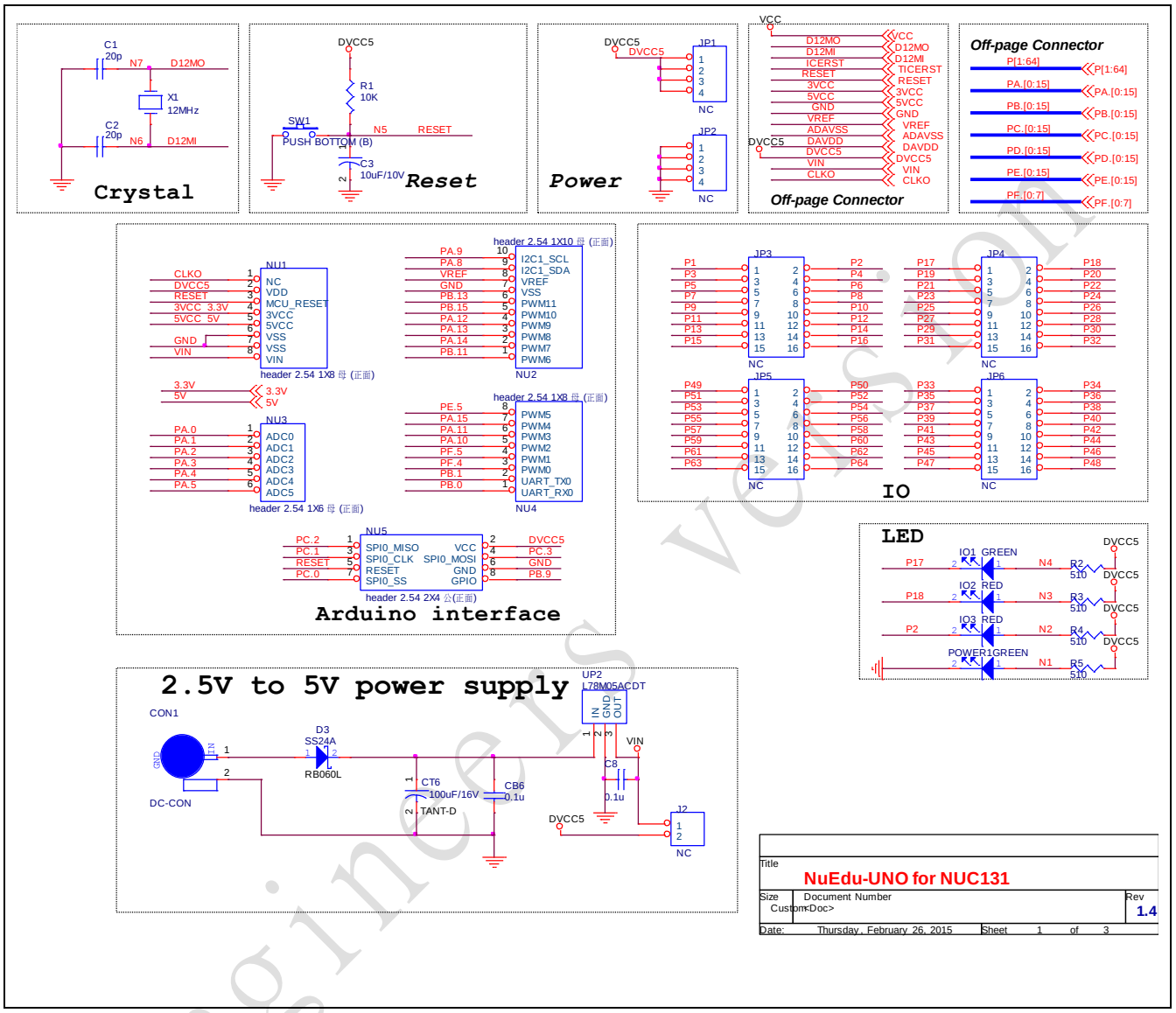


Figure 6-13 NuEdu-UNO-NUC131SD2AE Hardware Setup

Engineering Sample

7 NuEdu-UNO-NUC131SD2AE Schematics

7.1 NuEdu-UNO-NUC131SD2AE Schematic



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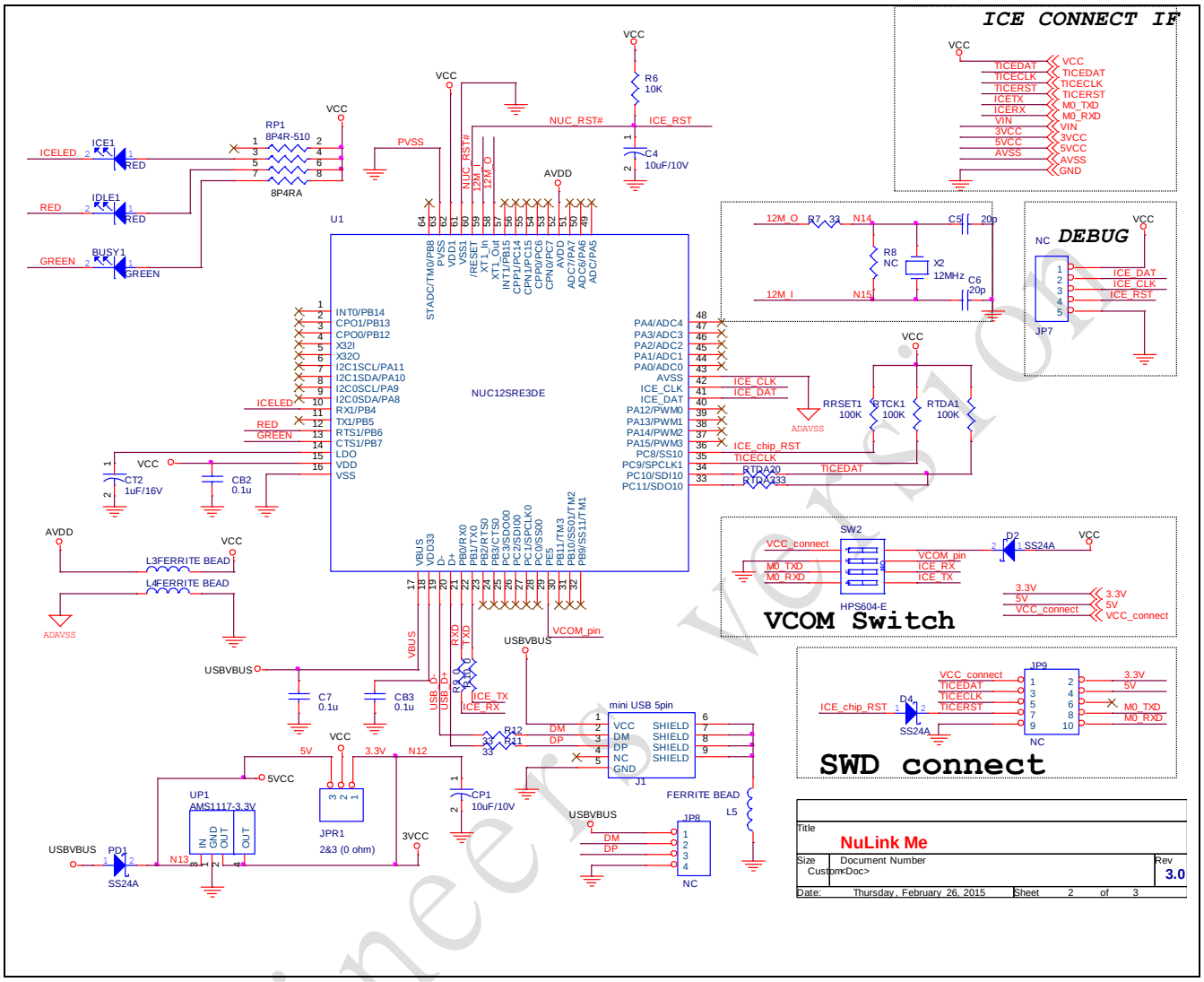
7.2 Nu-Link-Me Schematic



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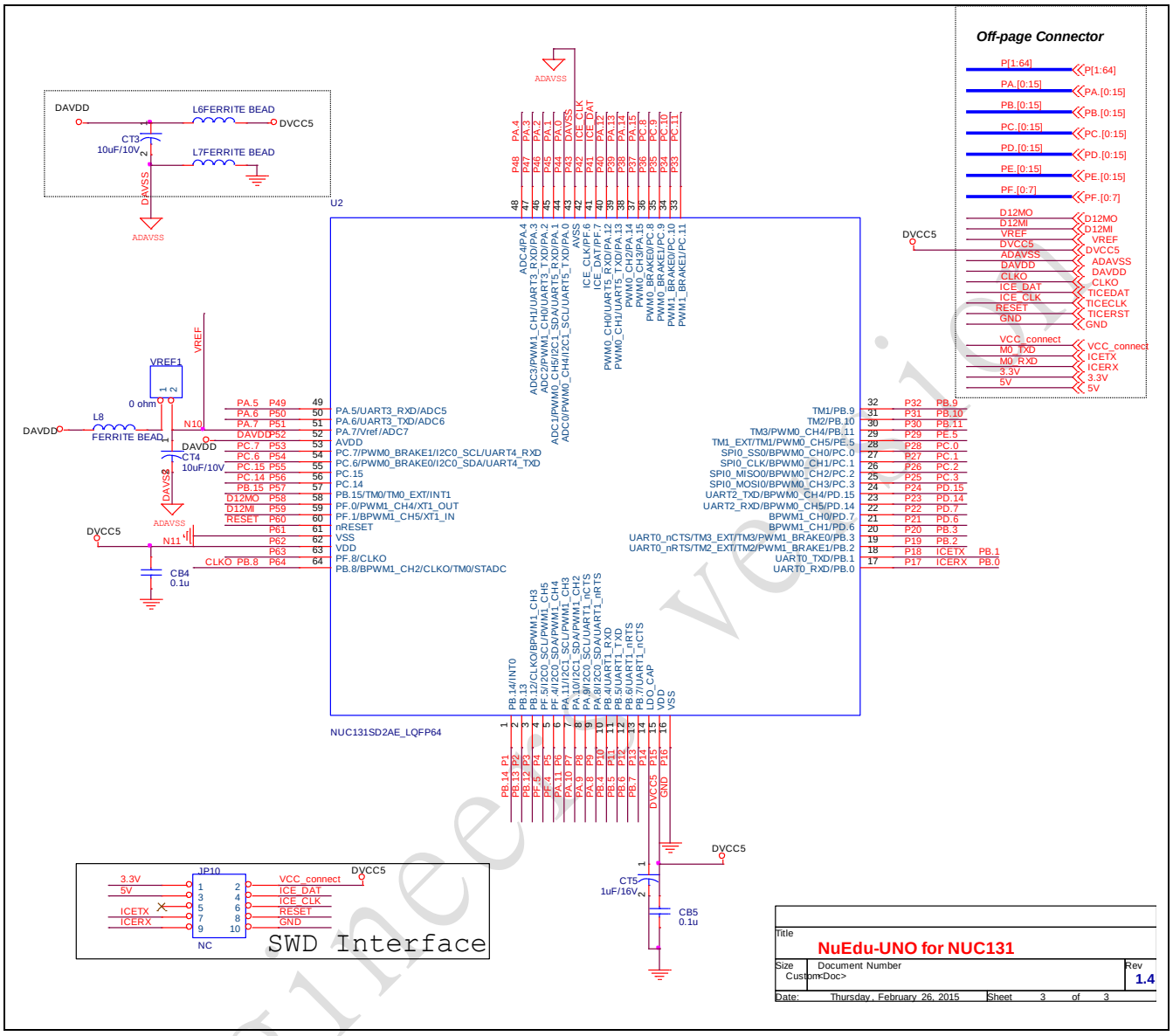
7.3 NuEdu-UNO-NUC131SD2AE Schematic



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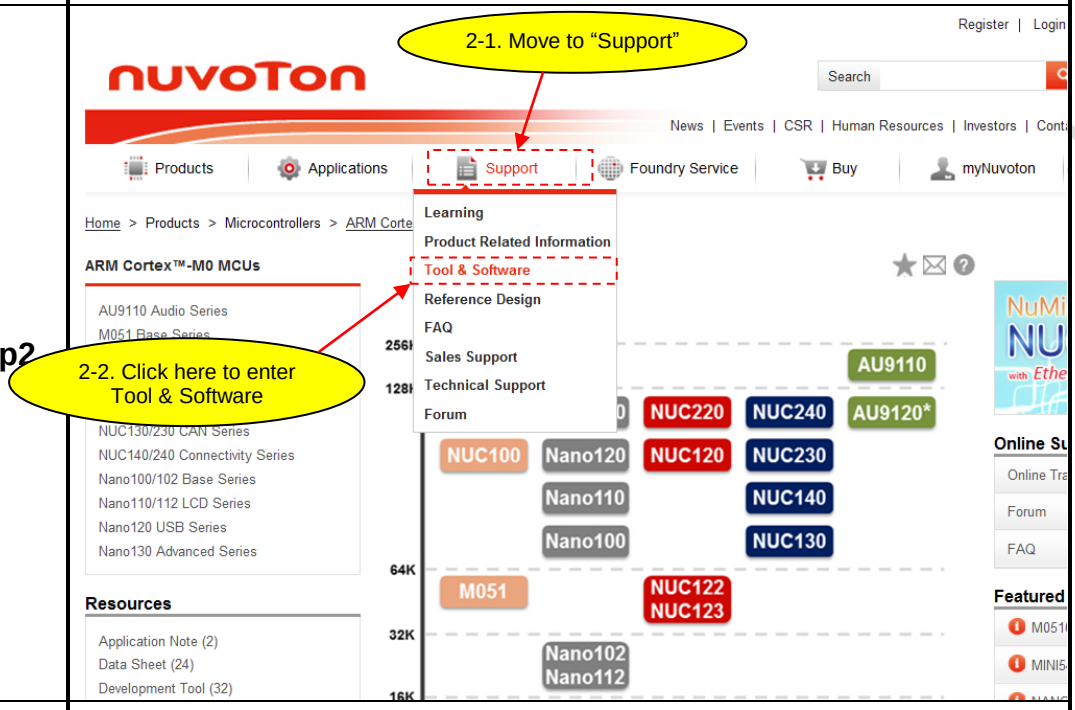
8 Downloading NuMicro™ Related Files from Nuvoton Website

8.1 Downloading NuMicro™ Keil µVision® IDE Driver

Step1

Visit the Nuvoton NuMicro™ website: http://www.nuvoton.com/NuMicro.

Step2



Step3

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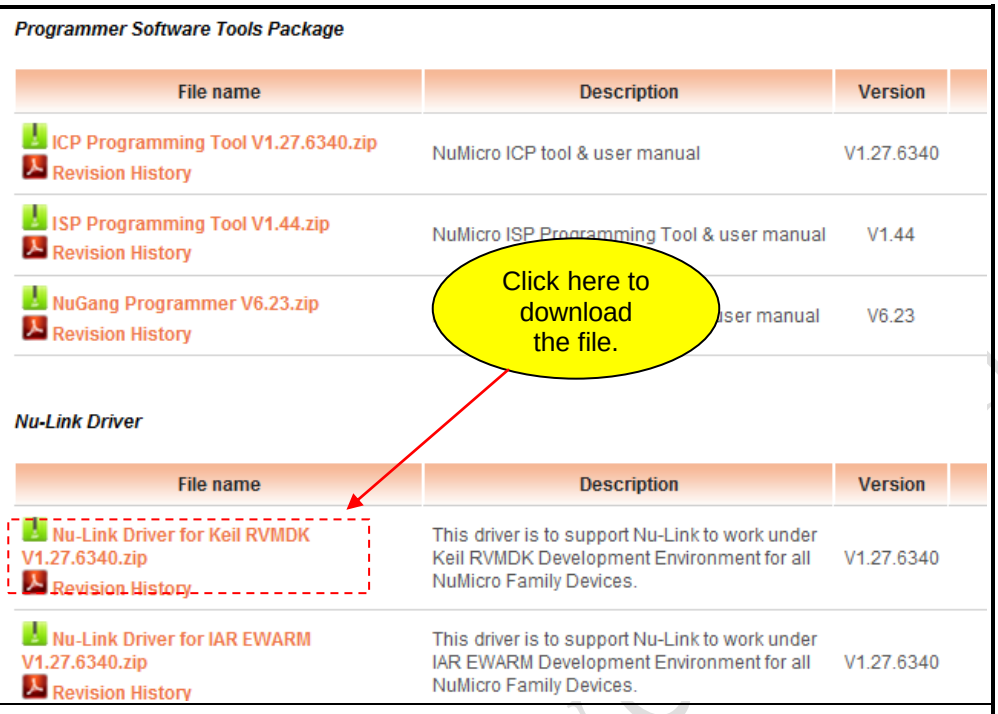
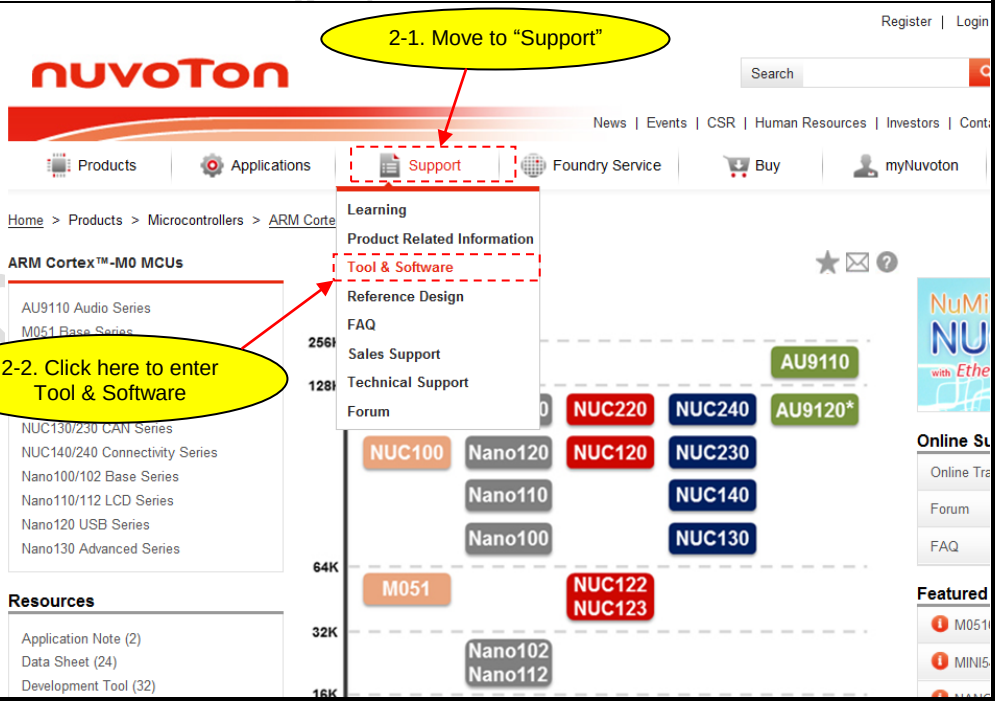
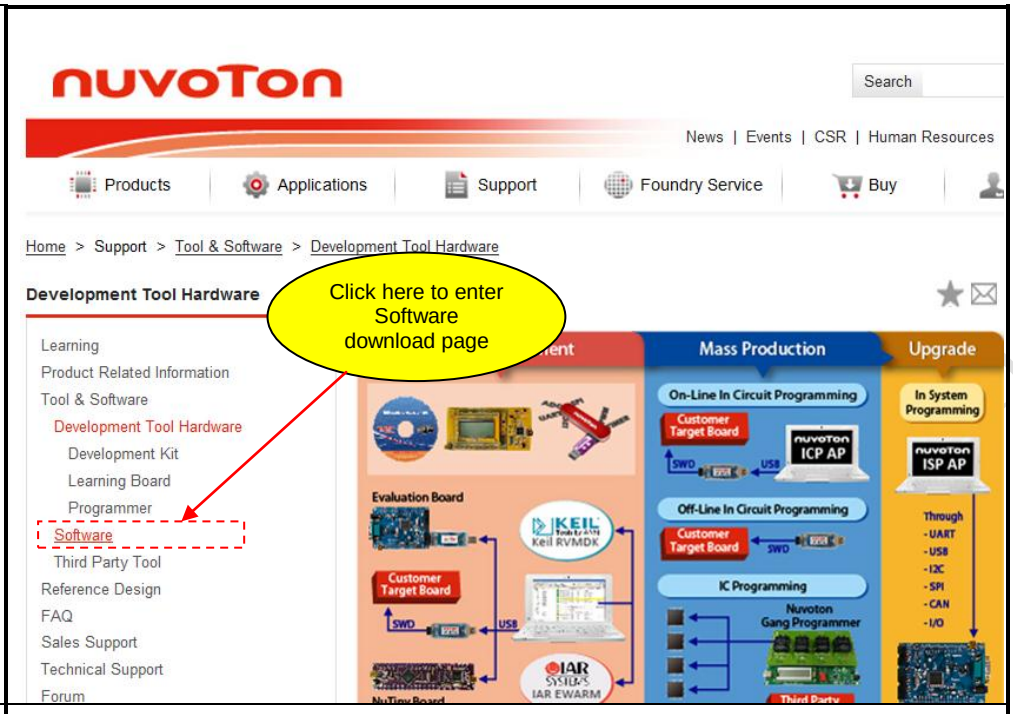
Step4	
Step5	Download the NuMicro™ Keil µVision® IDE driver.

Table 8-1 Pin Assignment for NuEdu-UNO-NUC131SD2AE

8.2 Downloading NuMicro™ Keil µVision® IDE Driver

Step1	Visit the Nuvoton NuMicro™ website: http://www.nuvoton.com/NuMicro.
Step2	

<table>
<tr><td>Step3</td><td> 
</td></tr>
<tr><td>Step4</td><td>Programmer Software Tools Package

<table>
<tr><th>File name</th><th>Description</th><th>Version</th></tr>
<tr><td>ICP Programming Tool V1.27.6340.zip
Revision History</td><td>NuMicro ICP tool & user manual</td><td>V1.27.6340</td></tr>
<tr><td>ISP Programming Tool V1.44.zip
Revision History</td><td>NuMicro ISP Programming Tool & user manual</td><td>V1.44</td></tr>
<tr><td>NuGang Programmer V6.23.zip
Revision History</td><td>NuGang Programmer software & user manual</td><td>V6.23</td></tr>
</table>
Nu-Link Driver
Click here to download the file.
<table>
<tr><th>File name</th><th>Description</th><th>Version</th></tr>
<tr><td>Nu-Link Driver for Keil RVMDK V1.27.6340.zip
Revision History</td><td>This driver is to support Nu-Link to work under Keil RVMDK Development Environment for all NuMicro Family Devices.</td><td>V1.27.6340</td></tr>
<tr><td>Nu-Link Driver for IAR EWARM V1.27.6340.zip
Revision History</td><td>This driver is to support Nu-Link to work under IAR EWARM Development Environment for all NuMicro Family Devices.</td><td>V1.27.6340</td></tr>
</table></td></tr>
<tr><td>Step5</td><td>Download the NuMicro™ IAR EWARM driver.</td></tr>
</table>

Table 8-2 Pin Assignment for NuEdu-UNO-NUC131SD2AE

NUMICRO™ NUEDU-UNO FOR NUC131 SERIES USER MANUAL

9 Revision History

Date	Revision	Description
2015.03.02	0.001	1. Engineers version
2015.03.06	0.002	1. Increase example step for Arduino, keil and IAR development tool. 2. Modify the schematic.

Engineers version

Engineers version

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